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NEW SPECIES OF ANTHOMYIIDAE AND
MUSCIDAE FROM CALIFORNIA
(DIPTERA)

By

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The following paper contains descriptions of fifty-nine species and five subspecies of flies belonging to the families Anthomyiidae and Muscidae. Nearly all are recorded as occurring in California, including a few from nearby states and provinces. Various species and subspecies are proposed as new to science, and are the outcome of a more extensive study of the fauna of California as restricted to these two families.

It is expected eventually to include these species and subspecies in a comprehensive survey of the known forms found in the state. In that report keys to genera, subgenera, and species will be included, which it is hoped may aid in the recognition or identification of the taxa herewith recorded.

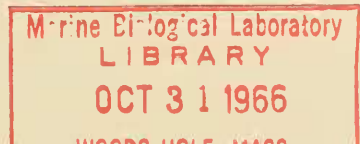
I wish to acknowledge my indebtedness to the following institutions and individuals that have generously afforded me the opportunity to study their collections. Their respective abbreviation symbols follow the names. California Academy of Sciences (CAS), University of California at Berkeley (UCB), University of California at Davis (UCD), University of California at Los Angeles (UCLA), California Department of Agriculture (CDA), Cornell University (CU), University of Kansas (UK), United States National Museum (USNM), Canadian National Collection (CNC), Dr. P. H. Arnaud, Jr., (PHA). Those labeled "PHA" are now deposited at the California Academy of Sciences. Specimens retained in my collection are noted as HCH.

Hylemya (Delia) concordata Huckett, new species.

(Figures 1, 9, and 17.)

MALE. In habitus resembling *H. neomexicana* Malloch, differing essentially in the longer arisal pubescence, the longer hairs usually being nearly equal in length to the width of the third antennal segment, and by the absence or

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presence of a series of weaker, finer posteroventral bristles on the hind femur. In addition the fore tibia has a longer, slightly curving, apical posteroventral bristle, the mid metatarsus may or may not have a dorsal fringe of longish setulae, the hind tibia has fewer (2 to 5) anteroventral bristles and only a few sparse posteroventral setulae. The processes of sternum 5 of the abdomen have a series of spinular setae along the distal half of the inner margin (fig. 17), and the anal segment is knobby in form.

There is, as in kindred species, considerable variation in coloration of specimens; the parafacials and cheeks may be reddish to blackish, the mesonotum and scutellum pale gray or densely browned as in the holotype, and with a trace of three stripes on the mesonotum, the abdomen with pale-gray pruinescence or a dingy yellowish gray. The femora are mainly black except at the apex; the tibiae are fulvous, with or without infuscation. The short prealar bristle may be present or absent.

FEMALE. Closely resembles that of *H. neomexicana*, differing chiefly in having much longer arisal hairs. The thorax and abdomen are dull gray, the latter striped lightly along the dorsocentral plane. In common with *H. neomexicana* the lower caudal sternopleural bristle is well developed, the terminal sclerites of the ovipositor have recurrent spinules, the mid tibia may or may not have a weak anterior bristle near the anterodorsal, and the series of anteroventrals on the hind femur may be continued along proximal third of femur or be absent thereat.

The extent and degree of dark coloration of femora vary widely, particularly with respect to mid and hind pairs. In specimens from Oregon, Washington, and British Columbia all are mostly blackish, and to the other extreme specimens from Montana, Nevada, and Mono County, California, have the mid and hind femora mostly or entirely fulvous.

LENGTH, 4.5 to 5.5 mm.

HOLOTYPE and ALLOTYPE. ♂, ♀, Silverton Hills, Marion County, Oregon, VI.20.41 (R. E. Rieder) CAS.

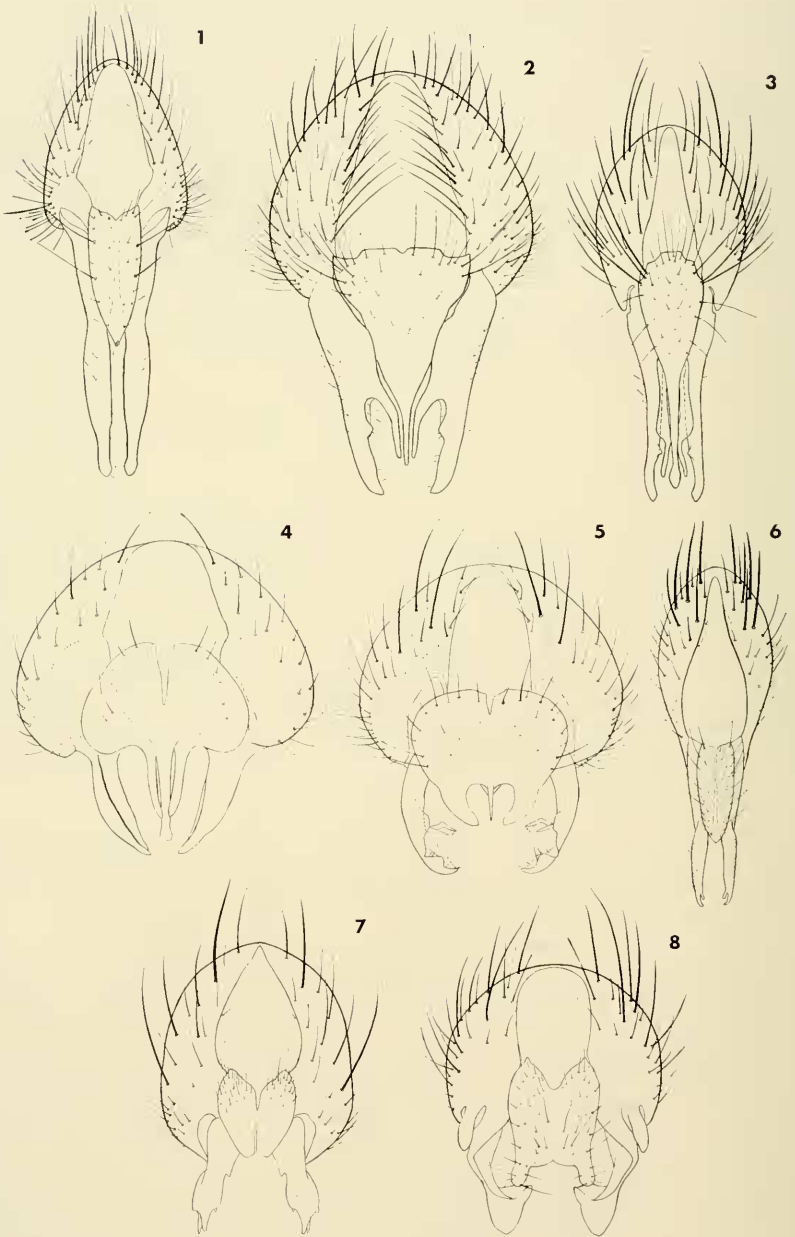
PARATYPES. ALBERTA: 1♂, Banff, VII.13.38 (E. C. Van Dyke) CAS. BRITISH COLUMBIA: 1♂, Similkameen, VII.21.06 (R. S. Sherman) CAS; 1♂, Seton Lake, Lillooet, VI.9.26 (J. McDunnough); 2♂♂, Oliver, V.26.23, 1♀, same locality, IX.4.23; 1♀, same locality, IX.20.23 (all C. B. D. Garrett); 2♀♀, Keremeos, VI.23.23 (C. B. D. Garrett) CNC. WASHINGTON: 1♀, Mount Rainier, Round Pass, VII.17.37 (B. Bennion) USNM; 1♂, Okanogon, V.20.24 (A. L. Melander) UCB. OREGON: 1♂, 2♀♀, same data as holotype, HCH; 1♀, Fort Klamath, 4,200 feet, VIII.31.30 (H. A. Scullen) HCH. IDAHO: 2♂♂, Viola, VI.26.12, CAS; 1♂, Emery Canyon, 12 miles SE. of Oakley, Cassia County, VII.23.59 (W. F. Barr) CAS. CALIFORNIA: 1♀, S. end of Eagle Lake, Lassen County, VIII.26.63 (H. B. Leech) CAS; 1♂, Bridge Creek Camp, Lassen County, VII.9.49 (E. L. Atkinson) UCB; 1♀,

Webber Lake, Sierra County, IX.3.39 (B. Brookman) CAS; 1♂, Truckee Nevada County, VII.16.16 (H. G. Dyar) USNM; 1♀, Snowline Camp, El Dorado County, VII.4.48 (P. D. Hurd) UCB; 1♂, 1.5 mile NE. of Red Lake, Alpine County, VII.25.55 (E. I. Schlinger) UCD; 1♀, Carson Pass, Alpine County, VII.28.30 (H. H. Keifer) CDA; 2♂♂, Strawberry Meadows, Tuolumne County, VIII.19.55 (J. W. MacSwain) UCB; 1♀, Sonora Pass, Tuolumne County, VIII.21.59 (D. D. Linsdale) UCB; 13♂♂, 3♀♀, Leavitt Meadow, 7,200 feet, Mono County, VIII.12-14.63, at flight trap, (H. B. Leech) CAS; 9♂♂, 2♀♀, Virginia Lakes, 9,750 feet, Mono County, VIII.17.63 (H. B. Leech) CAS; 1♂, 2♀♀, Mammoth Lakes, Mono County, VII.29.40 (R. H. Beamer, D. E. Hardy) HCH. NEVADA: 1♀, Reno, VI.27.27 (E. P. Van Duzee) CAS. UTAH: 1♂, Provo Canyon, North Fork, no date (D. E. Johnston) HCH. MONTANA: 1♂, Billings, VI.18.42 (H. B. Mills) USNM; 1♀, Mussellshell, VIII.19.17, Montana Experiment Station, USNM. COLORADO: 2♂♂, Pingree Park, VII.11.37 (R. H. Beamer, C. L. Johnston) UK.

Hylemya (Delia) fulvescens Hockett, new species.

MALE. Yellowish gray, head with parafacials whitish pruinulent, cheeks duller, face whitish, occiput gray, antennae fulvous, third segment tinged with gray on distal half, palpi fulvous, proboscis dull; mesonotum and scutellum brownish and shiny, the former with 3 faint stripes, pleura gray; abdomen yellowish gray, with a partly continuous fine dorsocentral stripe, anal sclerite and processes of sternum 5 yellowish. Legs fulvous, coxae with trace of grayish infuscation, fore femora darkened along dorsum, tarsi slightly darker than tibiae, pulvilli brownish tinged. Wings clear, veins brown, upper calyptal scale tinged, knobs of halteres yellow.

Head with narrower part of frons as wide as diameter of anterior ocellus, parafrontals finely separated caudad, 4 pairs of slender parafrontal bristles, postocular setulae shortened, profrons narrower and cheeks nearly as high as width of third antennal segment, parafacials in profile constricted at middle, arisal hairs slightly longer than basal diameter of arista, palpi slender. Mesonotum with acrosticals weak except one median presutural and caudal postsutural pairs, in two irregular series, prealar present in type, short, weak, sternopleurals 1:2. Abdomen subconical, depressed basad and slightly thickened at apex, with slender bristles and setulae, processes slender, sparsely clothed except for 4 or 5 bristles along each outer border. Legs slender. Fore tibia with 1 posteroventral and stout blunt apical posteroventral, mid femur with 4 or 5 fine posteroventrals on proximal half, preapical anterior undeveloped, mid tibia with no anterodorsal, 2 short posterior, apical mid ventral weak, hind femur with 6 or 7 short anteroventrals on distal two-thirds, without posteroventrals, hind tibia with 1 or 2 anteroventrals situated distad, 4 short anterodorsals, 3 long posterodorsals, 1 or 2 posteroventral setulae, pulvilli



long. Wings slightly tapering and pointed apicad, costal thorns and setulae weak, *m-cu* cross vein suboblique.

FEMALE. Fulvous, head with parafrontals and profrons reddish brown, interfrontalia reddish, cheeks with reddish reflections; thorax and abdomen with slight grayish dust; coxae fulvous. Frons at middle fully one-third width of head as viewed from above, caudal pair of ocellar bristles directed outward; ovipositor with setulae on suranal plate coarse and stubby, upright, on anal palpi stiff and straightened, but becoming slender and flaccid toward apex. Fore tibia with mid anterodorsal and posteroventral, apical posteroventral pointed, mid femur with preapical anterior, mid tibia with lengthy mid anterodorsal, 2 posterodorsals and 1 short posterior, apical mid ventral robust, hind tibia with 2 widely spaced anteroventrals, 4 anterodorsals, 3 posterodorsals.

LENGTH, 5.5 mm.

HOLOTYPE. ♂, Marion Mountain Camp, San Jacinto Mountains, California, VII.1.52 (J. K. Hester) UCD. ALLOTYPE. ♀, Idrai, San Benito County, California, VI.15.35 (M. Wasbauer) UCD. PARATYPES. 1♂, 1♀, Leavitt Meadow, 7,200 feet, Mono County, California, VIII.12-13.63, at flight trap (H. B. Leech) CAS.

The species *Hylemya fulvescens* may be associated with *Hylemya montana* Malloch. It differs from the latter in the shorter arisal hairs, and in that the female is extensively fulvous. The male of the paratype is paler than the holotype, having humeral callosities and lateral borders of scutellum testaceous; the female varies from the allotype in having a darker median vitta on mesonotum.

Hylemya (Delia) intimata Hockett, new species.

(Figure 30.)

The species *Hylemya intimata* is closely related to *Hylemya attenuata* Malloch, possessing the same habitus. In the male of *H. intimata* the abdomen is shorter, less tenuous, and less profusely bristled than in *H. attenuata*. I am not able from topotypical material before me to conclude to what degree the peculiar bristling and structure of the mid tarsus in the type of *H. attenuata* (fig. 31) may be regarded as of specific value for diagnostic purposes owing to the wide variation exhibited by the specimens with respect to such characters. In the type of *H. intimata* the mid tarsus is normal (fig. 30), being without dorsal

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FIGURES 1-8. Dorsal or caudal aspect of male copulatory appendages. FIGURE 1. *Hylemya (Delia) concordia*, new species. FIGURE 2. *Hylemya (Botanophila) sperata*, new species. FIGURE 3. *Hylemya (Botanophila) pseudospinidens*, new species. FIGURE 4. *Hylemya (Pegohylemyia) sodalis*, new species. FIGURE 5. *Hylemya (Pegohylemyia) salutaris*, new species. FIGURE 6. *Pegomya affinis juscopunctata*, new subspecies. FIGURE 7. *Pegomya hirticauda*, new species. FIGURE 8. *Pogonomyia amnicola*, new species.

series of longish setulae on the metatarsus, and without the extra-long apical posterodorsal thorns on segments 2, 3, and 4. The female of *H. intimata* has the profrons and parafacials noticeably narrower than in female of *H. attenuata*.

LENGTH, 4 to 5 mm.

HOLOTYPE. ♂, Rincon, San Diego County, California, XII.13.35 (A. J. Basinger) CAS. ALLOTYPE. ♀, same data as holotype, CAS. PARATYPES. CALIFORNIA: 1 ♀, same locality as holotype, XII.7.35 (A. J. Basinger) CAS; 1 ♀, San Diego, I.18.13 (E. P. Van Duzee) CAS; 2 ♂♂, Claremont, Los Angeles County, no date (Baker) USNM; 1 ♀, mountains, near Claremont, Los Angeles County, no date (Baker) USNM; 1 ♀, Glendale, Los Angeles County, XII.29.52 (E. I. Schlinger) UCD; 1 ♀, Mt. Saint Helena, Napa County, II.22.53 (J. C. Hall) UCD.

***Hylemya (Delia) nubilalis* Hockett, new species.**

MALE. Black and with brownish pollen, subshining, head and appendages black, frontal vitta reddish cephalad, parafacials reddish and with whitish or brownish pruinescence, cheeks duller, proboscis dull; mesonotum and scutellum with brownish dust and blackish reflections, mesonotum seen from behind with dark dorsocentral vitta and two linear stripes along series of dorsocentral bristles that extend caudad to about midway on postsutural region, scutellum darkened; abdomen with silky luster, brownish pruinescence and narrow dorsocentral vitta, anal segment and processes of sternum 5 blackish. Legs blackish, pulvilli tinged. Wings clear, basal region tinged yellowish brown, calyptrae tinged, margins yellowish brown, knobs of halteres yellow or reddish, stalks partly or entirely reddish.

Head with narrower part of frons about as wide as twice diameter of anterior ocellus, interfrontalia linear caudad, separating parafrontals, 5 pairs of slender parafrontal bristles, profrons and cheeks slightly less in width and height respectively than breadth of third antennal segment, buccal region with a loose series of upturned marginal bristles, postocular setulae short on ventral half of series, arisal hairs not longer than basal diameter of arista. Mesonotum with weak acrosticals, irregularly paired and in two close adjacent series, with one longer medial pair on presutural region, prealar variable in length, from shorter to about as long as posterior notopleural, sternopleurals 1 : 2. Abdomen conical, slightly depressed, profusely bristled on venter, sternum 4 with long erect bristles, processes short, with increasingly long slender bristles from base to apex that are directed ventrad.

Fore tibia with 1 or 2 posteroventrals and a noticeably slender apical posteroventral, mid femur with a proximal series of fine posteroventrals, mid tibia in type with 1 anterodorsal, 2 posterodorsals, 1 posterior, 1 posteroventral, all weak and short, hind femur with a full series of anteroventrals, proximal bristles being scarcely as long as height of femur where situated, with proximal

series of fine short posteroventrals, hind tibia with 3 to 5 anteroventrals, 4 or 5 anterodorsals, 3 or 4 posterodorsals, and a few posteroventral setulae on proximal half, pulvilli long.

Wings with costal thorns and setulae weak, *m-cu* cross vein suberect, veins R_{4+5} and M_{1+2} slightly convergent toward wing margin.

FEMALE. Paler and more evenly yellowish brown, duller, interfrontalia reddish, mesonotum with indistinct darker lines along planes of dorsocentral bristles, abdomen yellowish brown and with faint dorsocentral marking; profrons and cheek about as broad and high respectively as width of third antennal segment, sternopleurals 1 : 2, lower caudal bristle weak, ovipositor with several stiff longish setulae on terminal sclerites. Fore tibia with 1 anterodorsal and 1 posteroventral, mid femur with anterior preapical, mid tibia with 1 anteroventral, 1 anterodorsal, 2 posterodorsals, 2 posteroventrals, hind femur with a full series of anteroventrals, those proximad being weak, with fine hairlike posteroventrals proximad, hind tibia with 3 anteroventrals, 5 short and 2 longer anterodorsals, 3 posterodorsals, pulvilli short. Costal thorn as long as humeral cross vein.

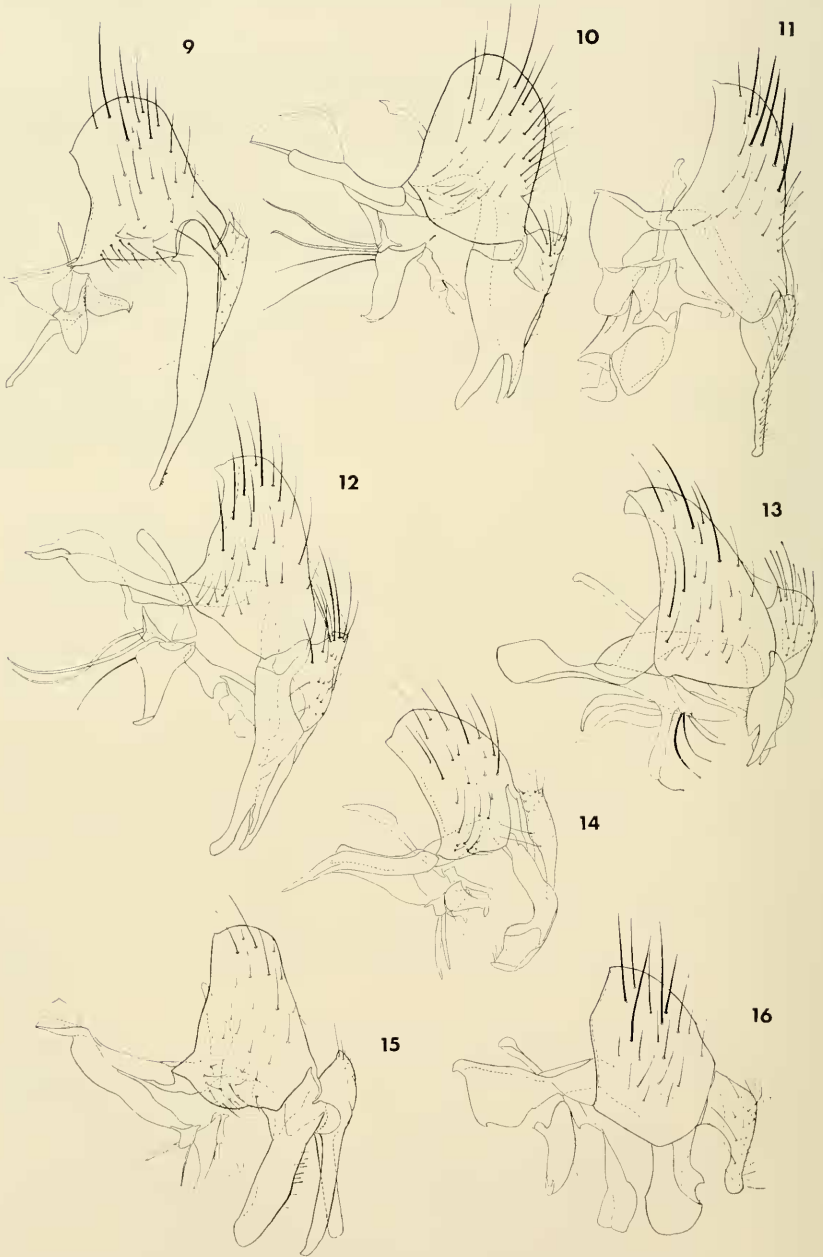
Length, 5 to 5.5 mm.

HOLOTYPE. ♂, Sardine Creek, Mono County, California, VII.6.51 (A. T. McClay) UCD. ALLOTYPE. ♀, same locality as holotype, 8,500 feet, VII.11.51 (A. T. McClay) UCD. PARATYPES. CALIFORNIA: 7 ♂♂, same locality as holotype, VII.3-18.51 (A. T. McClay) UCD, HCH, 1 ♀, same locality as holotype, VII.29.54 (J. C. Downey) UCD; 2 ♂♂, Tuolumne Meadows, 8,600 feet, Tuolumne County, VIII.15.16 (G. R. Pilate) USNM; 1 ♂, Pothole Meadows, 7,750 feet, Mariposa County, VII.3.46 (H. Chandler) CAS; 1 ♂, Sagehen, near Hobart Mills, Nevada County, VII.2.54 (J. C. Downey) UCD.

The male of *H. nubilalis* may be separated from similar forms by the following combination of characters: Apical posteroventral of fore tibia long and slender, anteroventrals and posteroventrals of hind femur weaker proximad, arisal hairs very short, processes of sternum 5 with increasingly long slender bristles from base to apex. The female may be distinguished by its even yellowish brown or ochreous color, and the stiff slender setulae on terminal sclerites of ovipositor.

Hylemya (Delia) suburbana Hockett, new species.

MALE. Brownish gray, head (teneral in type) with brownish parafacials and cheeks, face pale gray, occiput gray, antennae blackish, palpi brown, proboscis dull; mesonotum and scutellum brownish, the former with 3 faint linear stripes; abdomen cinereous gray pruinulent and with darker reflections, dorsocentral vitta moderately narrow, anal sclerite and processes of sternum 5 yellowish tinged in type. Legs with fore femora blackish except on distal third fulvous, mid and hind femora blackish on proximal and fulvous on



distal halves, tibiae fulvous, tarsi brown. Wings clear, tinged basad, calyptrae tinged, knobs of halteres yellow.

Head with narrower part of frons about equal in width to diameter of anterior ocellus, 5 pairs of parafrontal bristles, profrons slightly less in width and cheeks fully as high as breadth of third antennal segment, buccal region with a few stiffish upturned bristles on ventral margin, longer arista hairs slightly exceeding diameter of arista at base, palpi slender. Mesonotum with slender acrosticals, irregularly paired, in 2 close, adjacent series, prealar in type absent, posthumeral bristle finely duplicated, sternopleurals 1 : 2. Abdomen slender and depressed, sides subparallel and slightly tapering caudad, with a profusion of lengthy slender setulae, processes of sternum 5 slender, with a few fine preapical setulae on inner margin, with increasingly long bristles on outer border from base to apex, apical margin with a straight bristle slanting caudomesad, cerci with several longish slender setulae at apex.

Fore tibia with posteroventral, apical posteroventral weak, short, mid femur with a proximal series of slender posteroventrals, anterior preapical absent, mid tibia with 1 anterodorsal, 2 posterodorsals, 1 posterior, 1 posteroventral, hind femur with an extensive series of longish anteroventrals and several diverse posteroventrals, hind tibia with 2 or 3 weak anteroventrals, 4 or 5 anterodorsals, 3 posterodorsals, a few proximal posteroventral hairs. Wings with costal setulae weak, costal thorn nearly as long as humeral cross vein, *m-cu* cross vein suberect.

FEMALE (allotype partly abraded). Brownish as in male, interfrontalia, parafacials, and cheeks reddish, frontal vitta purplish caudad; mesonotum with prealar short, abdomen in allotype without marking, terminal sclerites of ovipositor with numerous stubby upright spinules. Legs fulvous, femora more or less extensively darkened on proximal two-thirds, tibiae fulvous, tarsi brownish. Fore tibia with 1 anterodorsal and 1 weak posteroventral in the allotype, apical posteroventral robust, mid tibia with 1 weak anterior, 1 strong anterodorsal, 2 posterodorsals, 1 proximal posterior, 2 posteroventrals, hind femur with 4 to 6 anteroventrals on distal two-thirds, and a sparse series of weak hairlike posteroventrals on the proximal half, hind tibia with 3 or 4 anteroventrals, 4 or 5 anterodorsals, 3 or 4 posterodorsals. Wings broken, costal thorn as long as *r-m* cross vein.

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FIGURES 9-16. Lateral aspect of male copulatory appendages. FIGURE 9. *Hylemya (Delia) concordia*, new species. FIGURE 10. *Hylemya (Botanophila) sperata*, new species. FIGURE 11. *Pegomya affinis fuscopunctata*, new subspecies. FIGURE 12. *Hylemya (Botanophila) pseudospinidens*, new species. FIGURE 13. *Pegomya hirticauda*, new species. FIGURE 14. *Hylemya (Pegohylemyia) salutaris*, new species. FIGURE 15. *Hylemya (Pegohylemyia) sodalis*, new species. FIGURE 16. *Pogonomyia amnicola*, new species.

Length, 6 to 6.5 mm.

HOLOTYPE. ♂, Sand dunes, San Francisco, California, V.13.27 (C. L. Fox) CAS. ALLOTYPE. ♀, Ingleside District, San Francisco County, California, VIII.26.08 (J. C. Bradley) CAS.

The male of *H. suburbana* as represented by the type may be separated from similar forms by the possession of the following combination of characters: Mid and hind femora largely fulvous on distal half, abdomen evenly slender and narrow, inner margin of processes without stiff or coarse setulae, hind tibia with sparse bristling on anteroventral and posteroventral surfaces.

***Hylemya (Botanophila) consolata* Hockett, new species.**

MALE. Black, parafacials and cheeks dull grayish pruinose, mesonotum with 3 obscure vittae, scutellum grayish, abdomen with cinereous pruinescence, and expansive subtriangular marks on terga 3, 4, 5, marks restricted on terga 1 + 2. Legs black, pulvilli brownish tinged. Wings tinged, densely basad, knobs of halteres yellow.

Head with narrower part of frons as wide as breadth of third antennal segment, 6 or 7 pairs of parafrontal bristles, inner and outer pairs of verticals as strong as parafrontal bristles, postocular setulae slender dorsad, interfrontalia well maintained caudad, uninterrupted, profrons about as wide and parafacials slightly narrower than width of third antennal segment, anterior margin of parafacials in profile scarcely receding ventrad, face flexed forward at oral margin to a level with tip of profrons, cheeks broad, slightly higher than one-third height of eye, antennae short, arisal hairs slightly longer than basal diameter of arista, proboscis nonslender; mesonotum with acrosticals fine and slender, with one or two bristlelike pairs on presutural region and continuously lengthy on the postsutural, prealar missing, sternopleurals 1:3; abdomen oblong, sides subparallel, truncate at apex, hypopygium with slender bristles, processes broad and extended apicad, as in *H. fibulans* Hockett, well bristled on distal half, submarginal spinules weak, inner margin with series of minute hairs.

Fore tibia with 1 anterodorsal and 1 posteroventral, mid femur with a series of slender anteroventral setae, and an extensive series of posteroventral bristles, mid tibia with 2 anterodorsals, 2 posterodorsals, 1 posterior, 2 posteroventrals, hind femur with a full series of anteroventrals and 5 or 6 posteroventrals, hind tibia with 3 or 4 anteroventrals, 4 to 6 anterodorsals and posterodorsals respectively, 2 or 3 posterior setulae, preapical posterodorsal and apical posteroventral long.

Wings with costal setulae and thorns weak, *m-cu* cross vein weakly sinuate, suberect, penultimate section of vein M_{1+2} in type as long as ultimate.

LENGTH, 6.5 mm.

HOLOTYPE. ♂, Echo Lake, El Dorado County, California, VII.19.55 (W. W. Middlekauff) UCB. PARATYPES. 1♂, same locality as holotype, VII.27.55 (W. W. Middlekauff) UCB; 1♂, Sardine Creek, 8,500 feet, Mono County, California, VII.11.51 (A. T. McClay) UCD.

The male of *H. consolata* closely resembles that of *H. fibulans*, particularly in the form and bristling of processes to sternum 5, where only submarginal spinules differ by being much weaker in *H. consolata*. The latter also possesses a robust apical posteroventral on hind tibia in contrast to its weak development in *H. fibulans*; further differences are apparent in the broader cheeks, more prominent extension of vibrissal angle cephalad, and stronger pairs of presutural acrosticals on mesonotum.

Hylemya (Botanophila) pseudospinidens Hockett, new species.

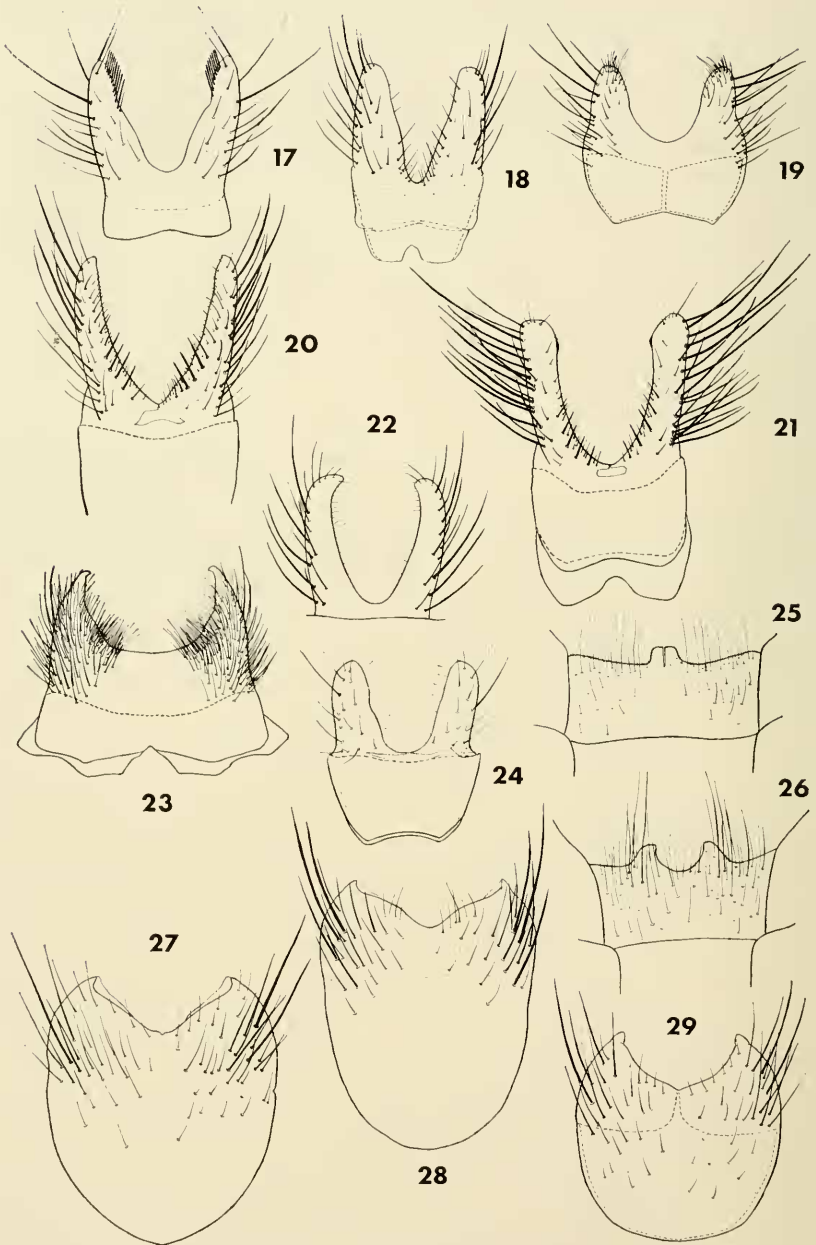
(Figures 3, 12, 21, and 33.)

MALE. Blackish, resembling *H. spinidens* Malloch, head higher than long at maximum diameters, frons at narrower part about as wide as distance between posterior ocelli, interfrontalia nearly so thereat, profrons wider and cheek higher than breadth of third antennal segment, parafacials about as wide as the latter, epistoma not so strongly extended cephalad as in *H. spinidens*, nor antennae as notably separated from each other by a facial bulge, arista swollen at base and with aristal pubescence more typical of *H. marginata* Stein, diversely arranged, longer hairs as long as width of third antennal segment. Thorax with numerous setulae at base of stigmatal bristle. Abdomen with copulatory appendages and genitalia as in figures 3, 12, and 21, similar to those of *H. spinidens*, but differing in conformation of cerci and apical digits of gonostyli; spinules on processes of sternum 5 more widely set apart than in *H. spinidens*.

Fore tibia with 1 or 2 posteroventrals, mid femur with series of longish anteroventral setulae, mid tibia with 2 anterodorsals, 2 posterodorsals, 2 shorter posteriors on proximal half, hind femur with a full series of longish anteroventrals and several diverse posteroventrals on proximal two-thirds, hind tibia with 3 or 4 anteroventrals, 3 or 4 anterodorsals, 3 posterodorsals, and a few posterior setulae on middle half of tibia, preapical posterodorsal and apical posteroventral weak, setulose.

Wings largely infuscated, blackish basad, veins M_{1+2} and R_{4+5} divergent at apex; calypterae tinged, margins brownish, knobs of halteres yellow.

FEMALE. Gray and with slight yellowish brown tinge on mesonotum and abdomen. Head rather similar in conformation to that of *H. spiniventris* Coquillett, differing chiefly in hairing of arista, which in character is similar to that of *H. marginata* Stein, distal half of proboscis not compressed laterally, mesonotum with or without trace of stripes. Legs with sparser bristling, fore-tibia with mid anterodorsal, mid femur with or without weak prebasal antero-



ventral, mid tibia with short anterior. Wings yellowish brown proximad, costal thorn as long as *r-m* cross vein.

LENGTH, 7 mm.

HOLOTYPE and ALLOTYPE. ♂, ♀, Lone Pine, Inyo County, California, VII.28.40 (R. H. Beamer) HCH. PARATYPES. 2♀♀, same locality and date as holotype, (L. C. Kuitert); 3♂♂, Whitney Portal, Inyo County, California, VII.3.53 (W. D. McLellan) UCD.

Hylemya (Botanophila) sperata Hockett, new species.

(Figures 2, 10, and 20.)

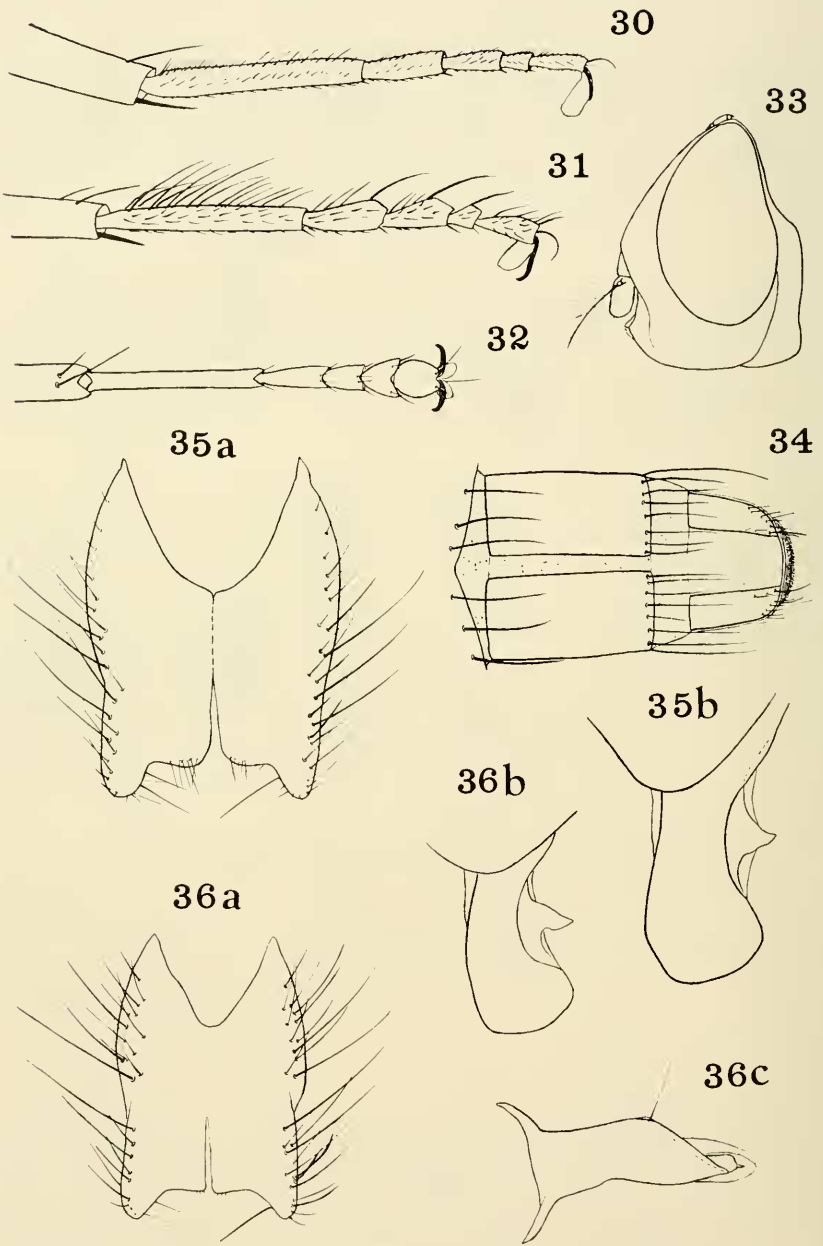
MALE. Blackish, subshining, with sparse grayish pruinescence, mesonotum with a trace of infuscation and 3 obscure brownish stripes, scutellum brownish, abdomen with broad subtriangular marks and anterior incisures on terga 3, 4, 5. Legs black, pulvilli whitish. Wings deeply infuscated basad, calyptrae tinged, knobs of halteres yellow.

Head with narrower part of frons at least as wide as breadth of third antennal segment, interfrontalia uninterrupted caudad, 5 pairs of parafrontal bristles, parafacials and cheeks wider and higher respectively than width of third antennal segment, dimensions of parafacials well maintained ventrad and of cheeks caudad, vibrissae and marginal bristles slender, arisal hairs barely longer than basal diameter of arista, proboscis not slender, scarcely as long as maximum height of eye. Mesonotum with weak acrosticals, prealars long, sternopleurals 1:2. Abdomen compact, sides subparallel, processes similar to those of *H. marginata* Stein, but without the slender inner marginal hairs, is proportionately narrow and tapering apicad, with a full series of slender bristles on outer border, with submarginal series of fine spinules extending from basal region to distal half, inner margin with fine short hairs from base to apex, cerci, gonostyli and genitalia as in figures 2, 10, and 20.

Fore tibia with 1 mid posteroventral, 1 longer and 1 shorter anterodorsal, preapical posterodorsal absent, mid femur with a series of weak anteroventrals and 3 or 4 slender posteroventrals, mid tibia with 1 or 2 anteroventrals, 2 anterodorsals, 2 posterodorsals, 1 posterior, 2 posteroventrals, hind femur

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FIGURES 17-29. Ventral aspect of sternum 5 in male. FIGURE 17. *Hylemya (Delia) con-corda*, new species. FIGURE 18. *Hylemya (Pegohylemyia) salutaris*, new species. FIGURE 19. *Pegomya affinis fuscopunctata*, new subspecies. FIGURE 20. *Hylemya (Botanophila) sperata*, new species. FIGURE 21. *Hylemya (Botanophila) pseudospinidens*, new species. FIGURE 22. *Chiastocheta solidiceps*, new species (dried specimen). FIGURE 23. *Pegomya hirticauda*, new species. FIGURE 24. *Hylemya (Pegohylemyia) sodalis*, new species. FIGURE 25. *Lispe desertorum*, new species (dried specimen). FIGURE 26. *Lispe approximata*, new species (dried specimen). FIGURE 27. *Pogonomyia profrontalis*, new species. FIGURE 28. *Pogonomyia santamonicae*, new species. FIGURE 29. *Pogonomyia ammicola*, new species.



with full series of longish anteroventrals and 3 posteroventrals, hind tibia with 2 or 3 anteroventrals, 4 anterodorsals, 3 long posterodorsals, 3 or 4 posterior setae, preapical posterodorsal weak, apical posteroventral weak or long.

Wings with costal thorn about as long as humeral cross vein, *m-cu* cross vein weakly sinuate.

FEMALE. Gray, with or without brownish cast, mesonotum with or without trace of stripes, abdomen with weak dorsocentral marking; wings yellowish brown proximad; parafacials and cheeks broad, arista usually polished at base, acrosticals weak. Mid femur with 1 or 2 anteroventrals on proximal third, mid tibia with 1 or 2 anteroventrals, 2 anterodorsals, hind tibia with 2 or 3 anteroventrals, 4 anterodorsals, 3 posterodorsals, preapical posterodorsal weak, apical posteroventral usually weak, occasionally lengthy and slender. Costa coarsely setulose, costal thorn longer than humeral cross vein.

LENGTH, 5.5 to 6.25 mm.

HOLOTYPE and ALLOTYPE. ♂, ♀, 4 miles N. of Silver Lake, Amador County, California, VII.25.55 (J. C. Downey) UCD. PARATYPES. CALIFORNIA: 2 ♀ ♀, same data as holotype; 1 ♂, 2 ♀ ♀, Smith Mill, 15 miles SE. of Sierraville, Sierra County, VII.4.60 (F. D. Parker) CAS; 2 ♂ ♂, Hope Valley, Alpine County, VII.9.48 (C. D. MacNeill) CAS; ♂, Forestdale Meadow, Alpine County, VII.17.60 (C. G. Moore) UCD; 1 ♀, 2 miles S. of Meyers, El Dorado County, VII.24.55 (J. C. Downey) UCD; 1 ♀, Kennedy Meadows, Tuolumne County, VII.9.51 (A. T. McClay) UCD; 2 ♀ ♀, Leavitt Meadow, Mono County, VI.28.51 (T. R. Haig), 1 ♂, 7 ♀ ♀, same locality, VII.6.51 (S. M. Kappos) UCD, HCH.

The males of *H. sperata* and *H. varicolor* (Meigen) resemble one another in structure of cerci and gonostyli as viewed from above, figure 2. In *H. sperata*, however, the processes of sternum 5 are proportionately narrower than in *H. varicolor* and related species with short-haired aristae, and hind tibiae in *H. sperata* have no well developed preapical posterodorsal. The male of *H. sperata* differs from that of *H. marginella* Malloch in the structure of cerci and gonostyli and in having coarser spinules on the processes; in the female by absence of the robust preapical posterodorsal on fore tibia, and in that anteroventral bristles on mid femur are restricted to proximal third.

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FIGURES 30-36. FIGURE 30. *Hylemya (Delia) intimata*, new species, mid tarsus ♂. FIGURE 31. *Hylemya attenuata* Malloch, mid tarsus ♂. FIGURE 32. *Pegomya hirticauda*, new species, hind tarsus ♀ (setulae omitted). FIGURE 33. *Hylemya (Botanophila) pseudospinidens*, new species, head profile ♂ (bristles omitted). FIGURE 34. *Chiastocheta solidiceps*, new species, dorsal aspect of ovipositor. FIGURE 35. *Pogonomyia santamonicae*, new species. ♂. a) cerci, b) lateral view of gonostylus. FIGURE 36. *Pogonomyia profrontalis*, new species. ♂. a) cerci, b) lateral view of gonostylus, c) profile of outer paralobe of genitalia.

Hylemya (Phorbia) sombrosa Hockett, new species.

FEMALE. Dull, drab gray, head with dull grayish pruinescence, frontal vitta lightly dusted, parafacials with silvery patch opposite second antennal segment as viewed from in front, becoming a dark reflection when viewed laterad, antennae blackish, second segment reddish tinged along anterior border, palpi dark brown, proboscis dull; thorax and abdomen gray, concolorous, mesonotum with a trace of pale brown median vitta; abdomen unmarked, sclerites of ovipositor black and shiny. Legs grayish black, tarsi dark brown. Wings tinged, veins brown and becoming paler basad, calyptrae whitish, knobs of halteres yellow.

Head with frons broad, interfrontalia as wide as length of third antennal segment, profrons prominently projecting, as long as length of third antennal segment, antennae pendant, third segment slightly longer than wide, arista subnude, parafacials and cheeks broad. Mesonotum devoid of setulae, acrosticals weak, in 2 irregular adjacent series, prealars long, sternopleurals 2 : 2, ventral anterior bristle weak, scutellum without ventral hairs; abdomen with longish marginal bristles on terga, tergum 5 with discal series, ovipositor robust, sheathlike, bristleless, anal palpi glossy and pitted throughout, dorsal margin sharply angulate at apex, caudal margin fringed with fine hairs.

Fore femur with 1 or 2 semierect longish setulae on median plane of anterior surface, fore tibia with 1 anterodorsal, 1 posteroventral, preapical posterodorsal weak, mid femur with 4 or 5 anteroventrals on proximal three-fifths, and with 2 or 3 posteroventrals, mid tibia with 1 or 2 anteroventrals and anterodorsals respectively, 2 or 3 posterodorsals, 1 posteroventral, hind femur with 5 or 6 anteroventrals and 2 posteroventrals, hind tibia with 2 or 3 anteroventrals, 4 or 5 anterodorsals, 3 or 4 posterodorsals, preapical posterodorsal long, tarsi slender.

Wings with costal setulae coarse but short, costal thorn as long as *r-m* cross vein, *m-cu* cross vein suberect. LENGTH, 5 to 6 mm.

HOLOTYPE. ♀, Topanga Canyon, Los Angeles County, California, III.28.52 (D. Covey) UCLA. PARATYPE. ♀, Santa Monica Mountains, Los Angeles County, California, IV.20.52 (E. Smith) UCLA.

The female of *H. sombrosa* is notable for the uniformity of its dull gray color on thorax and abdomen, and its broad parafacials.

Hylemya (Pegohylemyia) praefecta Hockett, new species.

MALE and FEMALE. Grayish black, subshining, head with parafrontals and occiput dark gray, parafacials and cheeks lightly dusted, dull, with reddish reflections, sides of face and anterior margin of parafacials reddish in holotype, face leaden, interfrontalia in both sexes reddish yellow on cephalic half, purplish caudad, third antennal segment blackish, second segment reddish tinged, palpi brown, proboscis dull. Mesonotum gray, with or without 3 faint

brownish stripes, scutellum gray; abdomen concolorous and in male with trace of a dorsocentral stripe. Legs with femora black, tibiae rufous tinged, pulvilli brownish. Wings clear, veins brown in male, paler in female, membrane and veins yellowish basad, calyptrae tinged, knobs of halteres yellow.

Frons in both sexes equally broad and similarly bristled, slightly wider at vertex than distance between first pair of dorsocentral bristles, maximum height of eye slightly exceeding twice height of cheek, profrons as wide as breadth of third antennal segment, epistoma extended cephalad to level with tip of profrons, oral margin prominently flexed forward beneath apex of antennae, arista subnude. Mesonotum with short hairlike acrosticals, in 4 irregular series, prealars long, upper border of mesopleura without weak bristle adjacent to the anterior notopleural, sternopleurals 1:2. Abdomen in male slightly depressed, sides subparallel, truncate at apex, caudal margin of terga 3, 4, 5 strongly bristled on dorsum, processes robust and, in dried specimen, curved mesad at apex, finely and extensively bristled from base to apex, inner margin with fine hairs; in female the marginal bristles of terga are weaker, tergum 5 with weak upright discal bristles.

Legs robust, bristling in female variable, averaging slightly fewer bristles on femora and more numerous on tibiae than in holotype, fore tibia with 2 to 4 anterodorsals, 1 to 3 posteriors, 1 or 2 posteroventrals, pulvilli short; in holotype, fore tibia with 2 or 3 slender anterodorsals, 2 slender posteroventrals, mid femur with full series of anteroventrals and posteroventrals, mid tibia densely setulose on ventral surface, with 2 anterodorsals, 3 or 4 posterodorsals, 2 posteroventrals, hind femora with a full series of anteroventrals and posteroventrals, hind tibia with 3 anteroventrals, 5 or 6 anterodorsals, 5 posterodorsals, preapical posterodorsal lengthy, with 1 or 2 posteroventral setulae proximad, pulvilli long.

Wings with a ragged series of coarse unevenly developed costal setulae, those in the allotype and two paratypes include some that are spinular in length. In the holotype these have apparently been broken off as indicated by the enlarged scars or trichopores. Costal thorns long, *m-cu* cross vein erect.

LENGTH, 10 mm.

HOLOTYPE. ♂, Lake Agnus, Colorado, VIII.21.40 (W. P. Nye) CAS.
ALLOTYPE. ♀, Vivian Park, Provo Canyon, Utah, no date (D. E. Hardy) CAS.
PARATYPES. 1♀, same data as allotype, USNM; 1♀, Mirror Lake, Uintah Mountains, Utah, no date (D. E. Hardy) HCH; 1♀, Ruby Lake, 11,500 feet, NW. Inyo County, California, VIII.13.57 (C. D. MacNeill) UCB; 1♀, Lillooet, British Columbia, VII.24.17 (R. C. Treherne) CNC.

The species *H. praejecta* is notable for its robust size and prominent epistoma. The frons in the male and in the female is similarly broad and bristled. The females from Ruby Lake and Lillooet do not possess the marked

spinular development of costal setulae that is evident in the remaining specimens.

Hylemya (Pegohylemyia) salutaris Hockett, new species.

(Figures 5, 14, and 18.)

MALE. Grayish black, subshining, head and appendages blackish, parafacials with whitish pruinescence, cheeks duller, interfrontalia and profrons narrowly reddish at base of antennae, proboscis dull; mesonotum and scutellum brownish tinged, the former with a trace of brownish median stripe; abdomen with a narrow, brownish, dorsocentral vitta and a trace of anterior incisures on terga, hypopygium grayish black. Legs blackish, knees narrowly reddish and tibiae faintly rufous. Wings clear, yellowish tinged basad, calyptrae yellowish, knobs of halteres yellow.

Eyes at narrower part of frons separated by a distance slightly less than that between posterior ocelli inclusive, interfrontalia uninterrupted caudad, parafrontals with 3 or 4 pairs of bristles, and a weak pair of setulae opposite apex of ocellar triangle, profrons and cheeks in the type slightly less in width and height respectively than breadth of third antennal segment, well maintained ventrad and caudad respectively, arisal hairs about as long as basal diameter of arista, postocular setulae slender on dorsal half of series, proboscis non-slender. Mesonotum lacking setulae, with paired series of fine short acrosticals excepting stronger mid presutural and caudal postsutural pairs, prealars long, mesopleura with weak upper bristle near the anterior notopleural, sternopleurals 1 to 2 : 2; abdomen depressed, slender, sides subparallel, thickened caudad, copulatory appendages as in figures 5, 14, 18, inner margin of processes of sternum 5 without fringe of fine hairs.

Fore femur with 1 or 2 longish setulae on median plane of anterior surface, fore tibia with 1 anterodorsal, 1 posteroventral, mid femur with 3 or 4 short anteroventrals and 3 or 4 longer posteroventrals on proximal half, mid tibia with 2 anteroventrals, 2 anterodorsals, 2 posterodorsals, 2 posteroventrals, hind femur with full series of 6 or 7 longish anteroventrals, and a proximal series of fine posteroventrals, which are not longer than height of the femur where situated, hind tibia with 3 or 4 anteroventrals, 6 anterodorsals, 4 posterodorsals, and a series of 3 or 4 posterior setulae on middle half of tibia.

Wings with a series of stiffish suberect short costal setulae, costal thorns not long, *m-cu* crossvein slightly oblique, veins R_{4+5} and M_{1+2} divergent at wing margin.

LENGTH, 4.5 to 5 mm.

HOLOTYPE. ♂, Red Mountain, 11,000 feet, Colorado, VII.22.34 (C. P. Alexander) HCH. PARATYPE. 1 ♂, Tuolumne Meadows, Soda Springs, 8,600 feet, California, VIII.8.16 (G. R. Pilate) USNM.

The male of *H. salutaris* resembles that of *H. ringdahli* Drew (= *appendiculata* Malloch), from which it differs in structure of genitalia and copulatory appendages.

Hylemya (Pegohylemyia) sodalis Hockett, new species.

(Figures 4, 15, and 24.)

MALE. Blackish and with yellowish gray pruinescence, head with parafrontals and parafacials silvery pruinose, cheeks slightly duller, occiput gray, interfrontalia black and subdivided lengthwise by a brownish median line or crease when viewed from in front, antennae blackish, palpi paler, brown, proboscis dull; thorax and abdomen largely stained, thus obscuring marks, but it seems evident that abdomen has an uniformly narrow vitta. Legs blackish. Wings evenly clear, upper calyptal scale yellowish tinged, lower whitish, knobs of halteres yellow.

Eyes separated at narrower part of frons by a distance equal to diameter of anterior ocellus, parafrontals with 6 pairs of slender bristles, and in type with minute pair of setulae set immediately cephalad of apex of ocellar triangle, postocular setulae slender, parafacials throughout as wide as breadth of third antennal segment, cheeks narrow, in height scarcely equal to one-sixth that of eye, evenly maintained caudad, marginal bristles and vibrissae slender and moderately profuse, oral margin prominently curved forward below apex of antennae, haustellum slim, lengthy; mesonotum with a paired series of short fine acrosticals, prealars short, sternopleurals 1 : 2; abdomen depressed, not broad, sides subparallel, tapering caudad on tergum 5, bristles and setae longer and more numerous laterad than on mesal sector of dorsum, copulatory appendages as in figures 4, 15, 24.

Legs slender, fore tibia with 1 fine posteroventral, mid femur with 2 or 3 weak anteroventrals and 3 or 4 posteroventrals on proximal half, mid tibia with 1 anterodorsal, 2 posterodorsals, 1 posterior, 1 posteroventral, all short and fine, hind femur with full series of longish anteroventrals, 2 slender posteroventrals, hind tibia with 2 anteroventrals, 4 anterodorsals, 3 posterodorsals, and 2 or 3 posterior setulae on the proximal half.

Wings with costal setulae and thorns weak, *m-cu* cross veins suberect, veins R_{4+5} and M_{1+2} slightly convergent on approaching wing margin. LENGTH, 4 mm.

HOLOTYPE. ♂, Soda Springs, Tuolumne Meadows, 8,600 feet, Tuolumne County, California, VIII.8.16 (G. R. Pilate) USNM.

The male of *H. sodalis* differs essentially from those of its congeners in the structure of the cerci (fig. 4). In this respect the cerci are slightly similar to those of an Alaskan species that I have recently examined and which is now before me, and from the latter *H. sodalis* differs in general habitus and bristling, having the cheeks wider and abdomen slender.

Chiastocheta solidiceps Hockett, new species.

(Figures 22 and 34.)

MALE. Dark gray, subshining, head with slight whitish pruinescence on cephalic half of parafrontals and on parafacials and cheeks, caudal half of parafrontals and entire occiput grayish, interfrontalia turkey red on cephalic half, blackish caudad, third antennal segment blackish, second reddish tinged, palpi dark brown, proboscis dull; mesonotum gray and with 3 faint brownish stripes in type, scutellum and abdomen gray, the latter with obscure darker dorsocentral marking when viewed from behind. Legs blackish. Wings clear, calyptrae whitish, knobs of halteres yellow, stalks purplish.

Frons at vertex wider than distance between first pair of dorsocentral bristles, interfrontalia wider than length of third antennal segment, frons bristled as in female, parafacials in type slightly narrower and cheeks slightly higher than width of third antennal segment, arista subnude, proboscis not slender; mesonotum and scutellum largely bare, with few setulae, 3 pairs of presutural acrosticals in 2 narrowly separated series, mid pair stronger, postsutural acrosticals weak, hairlike except caudal pair, prealars long, upper border of mesopleura with weak bristle near anterior notopleural, sternopleurals 2 : 2, ventral bristle of anterior pair weak, of posterior pair short; abdomen nonslender, subdepressed and tapering caudad, processes of sternum 5 lengthy, slightly longer than hind metatarsus, curved mesad at apex, with bristles on outer border from base to apex, with sparse fringe of hairs on inner margin (fig. 22).

Fore tibia with 1 anterodorsal, 1 or 2 posteroventrals, mid femur with 3 or 4 anteroventrals and posteroventrals respectively, mid tibia with 1 anterodorsal, 2 posterodorsals, 1 posterior, 1 posteroventral, with or without a weak anteroventral, hind femur with a full series of 6 or 7 anteroventrals, 1 or 2 posteroventrals, hind tibia with 1 or 2 anteroventrals, 4 anterodorsals, 3 posterodorsals, lacking posterior setulae, pulvilli short.

Wings with costal setulae prominent proximad of costal thorns, costal thorn as long as humeral cross vein, *m-cu* cross vein straight.

FEMALE. Mainly as in male, mesonotum and abdomen devoid of marking, tergum 5 with few slender discal bristles, ovipositor shortened, appressed dorsoventrad, dorsum with broad black shiny sclerites, apex bluntly rounded as viewed from above (fig. 34).

LENGTH, 4 to 4.5 mm.

HOLOTYPE. ♂, Roberts, Marion County, Oregon, IV.11.40 (R. E. Rieder) CAS. ALLOTYPE. ♀, Thorn Hollow, Oregon, IV.29.38 (K. Gray, J. Schuh) CAS. PARATYPES. 2♂♂, Port Townsend, Washington, V.14.— (A. Seaton) HCH; 1♂, Berkeley, California, IV.8.54, 1♀, IV.19.54 (P. D. Hurd) UCB; 1♂, mountains, near Claremont, Los Angeles County, California, no date

(Baker) USNM; 1♀, Florence, Montana, VI.1.12 (Montana Experiment Station) USNM.

The species *C. solidiceps* has the head in both sexes very similar in coloration, structure, and bristling, and differs from *C. glauca* (Coquillett) in having no abnormal bristling on anteroventral surface of hind tibia.

Neohylemyia monticola Hockett, new species.

MALE. Gray, head with parafrontals gray, with or without brownish pollen, interfrontalia reddish to black, viewed from below with whitish sheen, parafrontals and cheeks reddish and more or less filmed with brownish or grayish pruinescence, second antennal segment reddish at apex, third segment black, palpi brown, proboscis dull; mesonotum and scutellum gray, subshining, with or without trace of brownish sheen and usually with 2 or 3 faint stripes; abdomen gray and with a dark-brown dorsocentral vitta, hypopygium lightly dusted. Femora largely black, tibiae and apical region of femora fulvous, tarsi brown. Wings clear, veins dark brown, paler basad, calyptrae clear, margin brownish, knobs of halteres yellow.

Frons at vertex fully as wide as distance between first pair of dorsocentral bristles, bristled as in female, cruciate bristles robust, arista long plumose, proboscis not long, profrons and cheek less in width and height respectively than breadth of third antennal segment, the latter fully 1.75 times as long as wide; mesonotum lacking setulae, acrosticals fine, irregularly paired, in two closely adjacent series, a stronger mid pair on the presutural region, prealars short, weak, sternopleurals 1 : 2; abdomen sturdy, nonslender, slightly depressed, sides subparallel, apical region thickened, anal segment prominent, knobby, processes of sternum 5 with a few stiffish setulae on middle third of inner margin.

Fore tibia with 1 anterodorsal, 1 posteroventral, mid femur with 1 or 2 weak basal anteroventrals and a proximal series of posteroventrals, mid tibia with 1 anterodorsal, 2 posterodorsals, 2 posteroventrals, hind femur with a full series of anteroventrals, bristles becoming shorter near base of femur, 3 or 4 fine posteroventrals, hind tibia with 2 or 3 anteroventrals, 4 anterodorsals, 3 posterodorsals, 1 or 2 posteroventral setulae. Wings with costal setulae and thorns weak, *m-cu* cross vein suberect.

FEMALE. Paler gray, interfrontalia reddish on cephalic region, blackish caudad, second antennal segment largely yellowish, scutellum with yellowish testaceous spot at apex; abdomen with a dark dorsocentral streak, ovipositor not seen. Legs with mid and hind femora largely fulvous and with trace of darker clouding (allotype) or mostly blackish on proximal two-thirds (paratype), hind femur with an anteroventral series on distal two-thirds, without posteroventrals or with 1 or 2 fine bristly posteroventral hairs.

LENGTH, about 4 mm.

HOLOTYPE. ♂, Mammoth Lakes, Mono County, California, VII.29.40 (D. E. Hardy) HCH. ALLOTYPE. ♀, Echo, El Dorado County, California, VIII.10.40 (L. J. Lipovsky) HCH. PARATYPES. 2♂♂, Leavitt Meadow, 7,200 feet, Mono County, California, VIII.13.63, at flight trap (H. B. Leech) CAS; 1♂, Onion Creek Meadows, 7,700 feet, Grant County, Oregon, VII.18.36 (H. A. Scullen) CAS; 1♂, Keremeos, British Columbia, VI.23.23, 1♀, Oliver, British Columbia, VIII.13.23, 1♂, Banff, Alberta, IX.5.22 (all C. B. D. Garrett) CNC.

The species *N. monticola* and *N. apivora* (Aldrich) have the frons similarly broad and bristled in both sexes. The former may readily be distinguished from the latter by its gray color and narrower parafacials and cheeks.

Alliopsis californiensis Hockett, new species.

MALE. Grayish black, mesonotum and scutellum brownish, abdomen paler, gray, with brownish dorsocentral marking, and anterior incisures on terga 3, 4, 5, basal sclerite of hypopygium grayish, dull on dorsum, polished and shiny laterad. Wings evidently not densely tinged or infuscated, calyptreae and calyptreal hairs whitish, margins pale brown, knobs of halteres yellow.

Eyes large, sparsely haired, closely approximate at narrowest part of frons, separated thereat by a distance equal to diameter of anterior ocellus, interfrontalia interrupted caudad, broadly expanding cephalad, parafrontals with 8 or 9 pairs of bristles on cephalic half, cruciate hairs present, profrons about as long as width of third antennal segment, width of parafacials well maintained ventrad, cheeks tapering sharply caudad below eye, occipital and postgenal sclerites with dense short fine hairs, buccal region with a few slender upturned marginal bristles, arisal hairs subplumose, the longer about equal to width of third antennal segment; mesonotum and scutellum densely haired, prealars short, lower duplicating posthumeral bristle absent, sternopleurals 2 : 2; ventral anterior weak, upper border of hypopleura with hairs, prosternum bare; abdomen robust, broadly subovate, anal sclerite of hypopygium with sparse clothing of fine slender bristles, basal sclerite with a few weak bristles on dorsum, processes normal, tapering distad and with a shaggy clothing of fine short upright bristles, inner border densely fringed.

Fore tibia with mid anterodorsal and posteroventral, with a preapical mid dorsal and a weak anterodorsal, mid femur with 2 or 3 short prebasal anteroventrals and 8 or 9 posteroventrals, mid tibia with one bristle respectively on the anteroventral, anterodorsal, posterodorsal, posterior, and posteroventral surfaces, hind femur with full series of lengthy anteroventrals and 6 or 7 similar posteroventrals on proximal half, hind tibia with 4 anteroventrals, 6 or 7 anterodorsals, 4 posterodorsals, and 1 or 2 slender posterior setulae proximad.

Wings with costal setulae and thorns weak, *m-cu* cross veins markedly oblique and sinuate, lower calyptal scale distinctly extended beyond margin of upper.

LENGTH, about 8 mm.

HOLOTYPE. ♂, Davis, Yolo County, California, III.31.53 (W. H. Lange) UCD.

The male of *A. californiensis* may readily be distinguished from its congeners by the subplumose arista, hairs on upper border of hypopleura, a strong anteroventral bristle on mid tibia. The specimen is covered with sand particles and is slightly abraded.

***Alliopsis hirtitibia* Hockett, new species.**

The male of *A. hirtitibia* may be linked to those species in which the male has outer bristles on processes of sternum 5 arranged in fanlike series along outer border, the tips reaching laterad beyond margin of abdomen and curving downward. It may be readily distinguished by the diffuse series of bristles and setulae on the entire anterior and dorsal surfaces of hind tibia, the bristling gradually denser and longer distad, posterior surface with or without a few semierect weak setulae.

In male and female the eyes are densely clothed with whitish hairs, at narrowest part of frons separated by a distance less than width of third antennal segment, parafacials receding ventrad to narrower dimensions, cruciate setulae absent; mesonotum with lower duplicating posthumeral bristle present, prealars long, prosternum bare, sternopleurals 1 : 2; abdomen whitish pruinulent. Fore tibia with 4 apical bristles (including preapicals), hind femur with longish anteroventrals and posteroventrals.

In the male the prebasal sclerite (tergum 6) of hypopygium is weakly bristled, anal segment swollen and with longish slender bristles, processes broad, each with a depressed or flangelike extension mesad along inner margin and having fine setulae. Wings are faintly tinged, becoming whitish at base.

In the female the fore tibia has 1 or 2 bristles on anterodorsal, posterior, posteroventral surfaces respectively, mid tibia with 2 bristles on anterodorsal, posterodorsal, posterior, and posteroventral surfaces respectively, hind tibia with bristling normal, 5 anteroventrals, 5 anterodorsals, 4 or 5 posterodorsals, fine longish preapical posterodorsal, 2 or 3 longish posterior setulae. Mid and hind tarsi broken off in allotype. Wings more distinctly and extensively tinged, with a small demarked whitish area at base.

LENGTH, 7 to 8 mm.

HOLOTYPE and ALLOTYPE. ♂, ♀, Arrowhead, British Columbia, V.10.27 (A. A. Dennys) CNC. PARATYPES. 1♂, Robson, British Columbia, X.10.37 (H. R. Foxlee) CNC; 1♂, Tahoe Lake, Nevada, X.5.35 (A. J. Basinger) CAS.

Alliopsis incompta Hockett, new species.

MALE. Black, dull and with sparse whitish pruinescence, parafacials silvery, mesonotum seen from in front with 3 weak linear stripes that terminate on caudal half of postsutural region in two large blackish marks, scutellum grayish; abdomen more densely whitish pruinulent, with blackish dorsocentral vitta, hypopygium lightly dusted. Femora and tibiae grayish black, tarsi dark brown. Wings extensively tinged, not denser basad, calyptal membrane whitish, knobs of halteres purplish or mainly yellowish brown.

Eyes with short hairs, narrower part of frons slightly less to about equal to width of third antennal segment, interfrontalia uninterrupted caudad, without cruciate setulae, parafrontals bristleless caudad, profrons slightly wider than breadth of third antennal segment, parafacials slightly receding ventrad, at middle about equal in width to that of third antennal segment, cheeks broad, tapering caudad, jowls or buccal region prominent, with a clump of robust upturned bristles on ventral border, epistoma nearly extended cephalad to level with tip of profrons; mesonotum with fine presutural acrosticals and interserial setulae, the respective series slightly closer to one another than to the nearer series of dorsocentral bristles, posthumeral bristle not duplicated, prealars longer than posterior notopleurals, sternopleurals 1 : 2, prosternum bare; abdomen conical, prebasal sclerite of hypopygium (tergum 6) bristled, anal sclerite (tergum 9) with fine weak bristles, gonostyli long and awl-like, processes lengthy, simple, tapering distad, nearly 3 times as long as its width at middle, inner margin fringed with short hairs and outer border with weak short bristles from base to apex.

Fore tibia with 1 or 2 posteroventrals, apical posteroventral fine, mid femur with anteroventrals on proximal half and posteroventrals on proximal two-thirds, mid tibia with 1 or 2 anterodorsals, 2 or 3 posterodorsals, 3 or 4 posterior-posteroventrals, hind femur with full series of 10 to 12 anteroventrals, proximal series of longish posteroventrals, hind tibia with 4 to 5 bristles on anteroventral, anterodorsal, and posterodorsal surfaces respectively, with 3 or 4 longish posterior setulae, preapical posterodorsal long.

Wings with costal setulae and thorns weak, veins R_{4+5} and M_{1+2} divergent at wing margin, *m-cu* cross vein oblique and sinuate, calyptal scales subequal.

FEMALE. Eyes sparsely haired, frons, parafacials and cheeks slightly wider and more prominent. Otherwise similar to male except for sexual characters.

LENGTH, 7 mm.

HOLOTYPE and ALLOTYPE. ♂, ♀, Snow Creek Trail, Yosemite National Park, Mariposa County, California, VI.21.36 (E. H. Hendee) UCB. PARATYPES. 1♂, Mt. Logan, Utah, VI.24.38 (G. F. Knowlton) HCH; 1♂, Mt. Rainier, Yakima Park, Washington, VII.25.32, USNM.

The species *A. incompta* and *A. hirtitibia* have the arista minutely haired and thereby differ from *A. californiensis*. The male of *A. incompta* lacks the

profuse bristling of hind tibiae possessed by the male of *A. hirtitibia*, and in both sexes of *A. incompta* the lower duplicating posthumeral bristle is lacking.

***Pegomya arenosa* Huckett, new species.**

MALE. Head light or pellucid yellow, occiput and ocellar callosity bluish gray, the former yellowish dorsad below vertex, parafrontals and parafacials with whitish pruinescence, cheeks less so, second antennal segment fulvous, third more or less fuscous or blackish, yellowish basad, arista yellowish or brownish, palpi yellow, with or without trace of darkening at apex; thorax gray, anterior border yellowish adjacent to and including humeral callosities, propleura and prosternum, scutellum largely yellowish; abdomen mainly yellowish, with interrupted brownish dorsocentral stripe. Legs yellow, including tarsi. Wings clear, cross veins in type unclouded, knobs of halteres yellow.

Head similar in structure to that of *P. affinis* Stein, with narrower part of frons about as wide as distance between the posterior ocelli, interfrontalia uninterrupted caudad, parafrontals with 4 pairs of bristles, arista minutely haired, profrons less than width of third antennal segment, cheeks broad, as high as width of the latter, verticals and postocular setulae short; mesonotum with acrosticals in regular paired series, prealars absent, mesopleura with a short upper bristle near the anterior notopleural, sternopleurals 1:2; abdomen as in *P. affinis*, marginal bristles of terga short.

Fore tibia with mid anterodorsal and posteroventral, mid femur with 2 posteroventrals, anterior preapical present, mid tibia with 1 anterodorsal, 2 posteriors, all short, weak setulose anteroventral, hind femur with 5 anteroventrals, extending in a series to prebasal region, 1 strong posteroventral, hind tibia with 1 anteroventral, 2 anterodorsals, 2 posterodorsals, preapical posterodorsal weak.

Wings with costal setulae short, black and coarse, costal thorn lengthy, *m-cu* cross vein slightly bowed inward at middle, suberect, veins R_{4+5} and M_{1+2} slightly divergent at apex, calyptrol scales subequal.

FEMALE. Similar to male except for sexual characters. Interfrontalia yellow and without cruciate bristles, parafacials in profile dished, mesonotum laterad and pleura more or less yellowish tinged; mid femur with 1 prebasal anteroventral, mid tibia with 1 stronger anterodorsal.

LENGTH, 4 to 4.5 mm.

HOLOTYPE and ALLOTYPE. ♂, ♀, White Sands National Monument, Otero County, New Mexico, VII.20.47 (C. P. Stroud) USNM. PARATYPES. 1♂, 1♀, same data as holotype, USNM; 1♀, Hopkins Well, Riverside County, California, IV.29.52 (P. D. Hurd) UCB.

The species *P. arenosa* closely resembles *P. diffinis* (p. 261), from which it may be separated by the paler yellowish notopleural depression and propleura, and the clear whitish wings.

Pegomya canyonensis Hockett, new species.

MALE. Gray, interfrontalia, parafacials and cheeks reddish and with sparse whitish pruinescence, second antennal segment fuscous, paler along distal border, third segment black, palpi brown; mesonotum seen from in front with 3 brownish vittae, scutellum brownish on dorsum; abdomen gray and with dark brown dorsocentral vitta, hypopygium lightly dusted, sternum 5 glossy, polished. Femora dark brown, fore tibia infuscated, mid and hind tibiae pale brown or yellowish brown, tarsi brown. Wings faintly grayish tinged, denser basad, veins brown, calyptrae hyaline, knobs of halteres yellow.

Head with narrower part of frons about as wide as diameter of anterior ocellus, parafrontals contiguous caudad, with 7 pairs of slender bristles, profrons narrower than and cheeks as high as width of third antennal segment, narrower part of parafacials wider than half length of profrons, oral margin curved forward to a level approximating tip of profrons, third antennal segment 1.5 times as long as wide, arista minutely haired, palpi rather shortened, barely longer than length of third antennal segment; mesonotum with paired acrosticals in 2 adjacent series, mid presutural pair stronger, posthumeral bristle weakly duplicated, prealars absent, sternopleurals 2 : 3, ventral bristle in each series weak; abdomen slender, depressed, sides slightly converging caudad, apex blunt, processes of sternum 5 short, broad, and mostly bare, widening on basal half, apical margin blunt and with lengthy slender bristles across apical border.

Fore tibia with 1 posteroventral, mid femur with a prebasal anteroventral and 3 or 4 posteroventrals, mid tibia with a weak anterodorsal, 1 posterodorsal, 2 posteriors, hind femur with full series of slender anteroventrals, 2 or 3 posteroventrals, hind tibia with 2 anteroventrals, 2 long (proximal) and 1 or 2 weak (distal) anterodorsals, 2 posterodorsals.

Wings with costal setulae and thorns weak, *m-cu* cross veins erect, calyptrae subequal.

FEMALE. Interfrontalia reddish, purplish caudad, parafrontals brownish tinged, parafacials and cheeks lighter red, antennae black; mesonotum and abdomen subshining, latter gray and with a poorly defined dorsocentral marking, femora blackish, halteres partly purplish tinged; frons at vertex wider than distance between first pair of dorsocentral bristles, interfrontalia not evenly broad, narrower on caudal half, cruciate bristles absent; mesonotum with acrosticals weak, irregularly arranged, lower duplicating posthumeral bristle weak or absent, sternopleurals 2 : 2, ventral bristles weak, tergum 5 with a few upright discal bristles laterad. Bristling of legs as in male.

LENGTH, 4.5 mm.

HOLOTYPE and ALLOTYPE. ♂, ♀, Mule Canyon, Calico Mountains, San Bernardino County, California, III.17.55 (M. Wasbauer) UCB. PARATYPES. 2 ♀ ♀, same locality and date as holotype (M. Wasbauer, P. D. Hurd) UCB.

The male of *P. canyonensis* is notable for the peculiar structure of processes to sternum 5. In both sexes the prealar bristle is absent.

***Pegomya diffinis* Hockett, new species.**

MALE. Closely resembling the male of *P. arenosa* (p. 259). Mesonotum with notopleural depression gray, propleura gray; abdomen mainly yellowish, with shifting or reflective gray areas on the dorsum and a brownish dorsocentral stripe. Femora with trace of extensive clouding. Bristling of legs as in *P. arenosa* except that preapical posterodorsal on the hind tibia of the type is slightly longer than the apical diameter of tibia. Wings faintly tinged, cross veins unclouded.

FEMALE. Similar to that of *P. arenosa*, and differing, as in male, by having notopleural depression gray, and wings less clear. Palpi more extensively infuscated at apex, third antennal segment less distinctly reddish basad. Abdomen with terga 1 + 2, 3, and sometimes 4 lightly gray across the anterior half, or more extensively so, with an obscure dorsocentral stripe. Bristling of legs as in male of *P. diffinis* except that preapical posterodorsal of the hind tibia does not exceed in length the apical diameter of the tibia.

LENGTH, 5.5 mm.

HOLOTYPE and ALLOTYPE. ♂, ♀, San Felipe, Baja California, Mexico, II.19.54 (P. H. Arnaud) PHA. PARATYPES. CALIFORNIA: 1♀, Borrego, San Diego County, IV.26.55 (M. Wasbauer) UCB; 1♀, Borrego Valley, San Diego County, IV.18.57 (E. I. Schlinger), 1♂, 18 miles W. of Blythe, Riverside County, IV.2.63 (A. Willink) UCD; 1♂, Palm Springs, Riverside County, IV.24.44 (A. L. Melander) USNM; ♀, Thousand Palms, Riverside County, III.4.55 (W. R. M. Mason), 1♀, same locality, III.12.55 (J. E. H. Martin) CNC; 1♀, Desert Hot Springs, Riverside County, III.3.55, 1♀, La Quinta, Riverside County, III.5.55 (both J. E. H. Martin) CNC; 1♀, Santa Monica Mountains, Los Angeles County, VII.3.50 UCB.

***Pegomya dissidens* Hockett, new species.**

The male of *P. dissidens* is allied to that of *P. minuta* Malloch, from which it may be separated by its larger size, 5 mm., 6 or 7 pairs of parafrontal bristles that in series extend caudad to a level approaching apex of frontal triangle, third antennal segment mostly yellowish in type (not entirely black), abdomen with poorly marked fuscous stripe, weak and ill-defined, hind tibia with shorter bristling. The processes of sternum 5 in *P. dissidens* when seen from below appear lamellate and evenly tapering distad to a bluntly pointed apex, possessing a depressed or sunken shiny flange of chitin along inner margin, with several scattered weak bristles on the proximal half that tend to become fewer and more marginal on the distal half, outer region of processes bare from base to apex.

HOLOTYPE. ♂, Sand dunes near Stovepipe Wells, Death Valley, Inyo County, California, IV.2.— (H. B. Leech) CAS.

Pegomya hirticauda Hockett, new species.

(Figures 7, 13, 23, and 32.)

MALE. Black and with grayish pruinescence, head with parafacials, cheeks, interfrontalia reddish or blackish, filmed with whitish pruinescence, face paler, second antennal segment fulvous to black, third segment black, palpi yellowish to brownish proximad, fuscous distad or at apex; mesonotum seen from in front brownish and with dark reflections or streaks, seen from behind with usually 3 dark and 2 intervening pale confluent stripes on presutural region, scutellum brownish, pleura gray; abdomen gray and with narrow black dorsocentral vitta, terga 3, 4, 5 with trace of browning on anterior half of each tergum, hypopygium lightly dusted. Femora blackish, dark brown or partly so, and sometimes paler on basal and apical regions, tibiae yellowish to yellowish brown, fore tibiae with or without infuscation, tarsi dark brown. Wings brownish tinged, denser basad, veins dark brown, calyptrae brownish tinged, knobs of halteres yellow.

Eyes closely approximate on frons, at narrowest part separated by a distance about equal to diameter of anterior ocellus, parafrontals contiguous, 4 or 5 pairs of bristles cephalad, postocular setulae short, profrons broad and prominent, thereby antennae pendant, parafacials narrowed and receding ventrad, cheeks broadly maintained caudad, third antennal segment about twice as long as wide, slightly broader than length of profrons and is as broad as height of cheeks, arista minutely haired, palpi slender; mesonotum with slender acrosticals, in series separated from one another by a distance equal to that separating the respective series of acrostical and dorsocentral bristles, posthumeral bristle duplicated, prealar short, sternopleurals 2 : 3, ventral bristles weak; abdomen short, depressed basad, truncate at apex, thickened caudad, processes widely set apart at base, outer border with slender bristles, inner border with dense clothing of slender setae and hairs (fig. 23).

Fore tibia with 1 posteroventral, mid femur with 2 or 3 slender posteroventrals, mid tibia with 1 anterodorsal, 1 posterodorsal, 2 posteriors, hind femur with a full series of slender anteroventrals and a proximal series of posteroventrals, hind tibia with 1 anteroventral, 2 or 3 short anterodorsals, 2 posterodorsals. Wings with costal setulae and thorns weak, *m-cu* cross vein erect or slightly oblique.

FEMALE. Gray, parafacials and cheeks reddish and with slight pruinescence, interfrontalia reddish cephalad, mesonotum gray, with a trace of 3 brownish vittae, abdomen gray, subshining, with or without a trace of an obscure dorsocentral marking. Femora more distinctly fulvous on basal and apical regions, tibiae more distinctly yellowish, coxae gray or fulvous (allotype);

frons at vertex fully as wide as distance between the first pair of dorsocentral bristles, interfrontalia at middle as wide as length of third antennal segment, with cruciate bristles, mesonotum with lower duplicating posthumeral bristle weak or absent, sternopleurals 2 : 2; abdomen subovate, with weak marginal bristles on terga, ovipositor with anal palpi discoid in form. Fore tibia with or without weak anterodorsal, 1 posteroventral, mid femur with or without prebasal anteroventral, with 1 or 2 posteroventrals, hind femur with fewer and shorter anteroventrals, without posteroventrals, mid and hind tibiae as in male, fore, mid, and hind tarsal segments 4 and 5 broadened, the fifth discoid (fig. 32).

LENGTH, 4 mm.

HOLOTYPE. ♂, Stanford University, Santa Clara County, California, XI.16.53 (P. H. Arnaud) PHA. ALLOTYPE. ♀, Pacific Palisades, Los Angeles County, California, XI.29.51 PHA. PARATYPES. CALIFORNIA: 4♂♂, same data as holotype, 4♂♂, same locality as holotype, XII.13.53, 1♂, same locality as holotype, III.29.40, 1♂, Redwood City, San Mateo County, XII.13.53 (all P. H. Arnaud) PHA; 1♂, Berkeley, Alameda County, XII.9.40 UCB; 2♀♀, Davis, Yolo County, III.8.53, at fish meal bait (E. C. Carlson) UCD; 1♂, near Foresthill, Placer County, V.12.63 (M. E. Irwin) UCD; 1♀, Mt. Pines, 8,000 feet, Ventura County, V.8.59 (J. Powell) UCB; 2♂♂, Glendale, Los Angeles County, XII.21.50, 6♂♂, 1♀, same locality, XII.29.52 (both E. I. Schlinger) UCD; 20♂♂, 30♀♀, Los Angeles, II.23.49, in teneral condition, UCB, HCH; 1♀, Pacific Palisades, Los Angeles County, XI.17.51 UCLA; 1♂, San Clemente, Orange County, II.4.47 (A. L. Melander) USNM; 3♂♂, San Diego, III.8.53 (P. H. Arnaud) PHA; 1♀, Mule Canyon, Calico Mountains, San Bernardino County, III.17.55 (M. Wasbauer) UCB; 1♀, Riverside, II.10.35, 2♀♀, same locality, III.17.35 (A. L. Melander) USNM.

The species *P. hirticauda* may be separated from allied forms by the broad cheeks, dense bristling of processes in male, and by the discoid fifth tarsal segments in female.

Pegomya melanderi Hockett, new species.

MALE. Related to the *P. affinis*-group, head with parafrontals, profrons and occiput gray, interfrontalia mainly reddish, parafacials and cheeks reddish brown, second antennal segment fulvous, third segment entirely black, face whitish, palpi yellow, entirely so or fuscous at tip; thorax gray, brownish on mesonotum and there macrochaetae set in brown basal spots, scutellum yellowish on apical region; abdomen dull gray, with a faint brownish dorsocentral stripe and spotlike marks laterad on dorsum, caudal margins of terga yellowish, increasingly so with each successive segment caudad, hypopygium and processes of sternum 5 yellow. Fore femora blackish, mid and hind pairs less so, tibiae and tarsi dull yellow or yellowish brown.

Wings with cross veins infuscated, distal third of vein R_1 darkened, calypttrae whitish, knobs of halteres yellow.

Frons broad, at vertex as wide as distance between first pair of dorso-central bristles, interfrontalia uniformly broad throughout, fully as wide as width of third antennal segment, parafrontals with femalelike bristling, verticals long and erect, arista swollen at base, minutely haired; mesonotum with a regular paired series of acrosticals, mid presutural pair longer and bristlelike, sternopleurals 1 : 2; abdomen conical, slightly depressed, marginal bristles on dorsum of terga weak mesad, stronger laterad, hypopygium and processes similar to those of *P. affinis*.

Fore tibia with a mid anterodorsal, 2 posteroventrals, preapical posterodorsal setulose or absent, mid femur with 1 or 2 anteroventrals on proximal half, 2 or more posteroventrals, mid tibia with a mid anteroventral, 1 long anterodorsal, 1 posterodorsal, 2 or 3 shorter posteriors, hind femur with full series of anteroventrals and 2 or 3 posteroventrals, hind tibia with 1 anteroventral, 2 anterodorsals, 2 posterodorsals, and occasionally 1 mid anterior, preapical posterodorsal setulose.

Wings with costal setulae short, costal thorn long. LENGTH, 5 to 6.5 mm.

HOLOTYPE. ♂, Desert Hot Springs, Riverside County, California, I.23.46 (A. L. Melander) USNM. PARATYPES. 3♂♂, same data as holotype, USNM.

The male of *P. melanderi* may be separated from those of allied species by the broad frons and interfrontalia. Named in honor of Dr. A. L. Melander, whose extensive collections of Diptera from southern California have contributed notably to the present survey of the state fauna.

***Pegomya nigrifemoralis* Hockett, new species.**

The species *P. nigrifemoralis* belongs to the *P. lipsia*-group within the genus, of which the common California species *P. duplicata* (Malloch) is a good example. The male of *P. nigrifemoralis* closely resembles those of *P. fuscicauda* and *P. setiformis*, from both of which it may be distinguished by the equally black fore, mid, and hind femora, and in my opinion from *P. duplicoides* Snyder, described from Mexico and which I have not seen, by the shiny blackish hypopygium and absence of the preapical posterodorsal on the fore tibia.

The female of *P. nigrifemoralis* has the fore-tarsal segments 3 and 4 slightly widened as in females of *P. fuscicauda* and *P. setiformis*, the fore femora extensively blackish, and the mid and hind femora fulvous. It differs from females of the latter two species by the absence of a preapical posterodorsal on the fore tibia.

HOLOTYPE. ♂, Hat Point, 7,000 feet, Wallowa County, Oregon, VII.30.41 (M. and R. E. Rieder) CAS. ALLOTYPE. ♀, Garden City, Utah, VI.6.38 (G. F. Knowlton, F. C. Harmston) CAS. PARATYPES. CALIFORNIA: 1♀, Cedar

Pass, Modoc County, VI.29.55 (J. W. MacSwain) UCB; 1 ♀, Smith Mill, 15 miles SE. of Sierraville, Sierra County, VII.4.60 (F. D. Parker), 1 ♂, 4 miles N. of Silver Lake, Amador County, VII.25.55 (E. I. Schlinger) both UCD; 1 ♂, Moraga Valley, Contra Costa County, IV.22.40 (E. S. Ross), 1 ♀, Orinda, Contra Costa County, IV.27.55 (R. H. Goodwin) both UCB; 1 ♀, Big Pines, Los Angeles County, VIII.2.44 (A. L. Melander) USNM. UTAH: 1 ♂, Logan Canyon, VI.9.38 (R. E. Nye) HCH; 1 ♀, Wellsville Canyon, June 1926 HCH. IDAHO: 1 ♀, Flat Rock, VIII.4.50 (R. R. Dreisbach, R. K. Schwab) HCH; 1 ♀, Chilco, Kootenai County, V.21.58 (A. R. Gittins) CAS. WYOMING: 1 ♀, Teton County, 9,000 feet, VII.22.53 (R. R. Dreisbach) HCH. WASHINGTON: 1 ♂, North Dryden, IV.23.25 (A. L. Melander), ♀, Wawawai, no date, USNM. ALBERTA: 1 ♂, Edmonton, VI.10.37 (E. H. Strickland) CNC.

***Pegomya orbata* Hockett, new species.**

The species *P. orbata* may be distinguished from its closest relatives in the *P. lipsia*-group by the infuscation on the distal half of the mid and hind femora. In the male the hypopygium is dull gray, concolorous with the abdomen; fore and hind tibiae have the preapical posterodorsal absent or setulose. In the holotype the wings are hyaline and have no clouding of cross veins, calyptae whitish and clear.

In the female of *P. orbata* the fore femora are extensively blackish, the fore and hind tibiae with the preapical posterodorsal absent or setulose, the mid tibiae without mid anteroventral, the fore-tarsal segments 3 and 4 slightly widened, in these respects agreeing with the female of *P. nigrifemoralis*. In both sexes the third antennal segment is entirely blackish except for a trace of reddish along the base of the inner surface in the male.

HOLOTYPE. ♂, Upper Santa Ana River, San Bernardino County, California, V.14.47 (A. L. Melander) USNM. ALLOTYPE. ♀, Big Pines, Los Angeles County, VIII.2.44 (A. L. Melander) USNM. PARATYPE. 1 ♂, Leavitt Meadow, 7,200 feet, Mono County, California, VIII.13.63, at flight trap (H. B. Leech) CAS.

***Pegomya polygonorum* Hockett, new species.**

MALE. Brown, subshining, interfrontalia, parafacials and cheeks deep red, parafacials with velvety pale brown pruinescence, second antennal segment rufous, third segment black, palpi brown; thorax shiny, seal brown, seen from in front without marking on mesonotum, seen from behind with 3 dark pre-sutural stripes, with paler intervening lines between the stripes; abdomen in holotype slightly teneral, shining and with brownish pruinescence, dorsocentral marks restricted to terga 1 + 2 and 3. Femora dark brown, tibiae yellowish brown, tarsi dark brown. Wings clear, slightly tinged basad, calyptae brownish tinged, knobs of halteres yellow.

Eyes at narrower part of frons separated by a distance about equal to the diameter of the anterior ocellus, parafrontals contiguous, with 6 or 7 pairs of weak bristles, profrons narrower than width of third antennal segment, parafacials narrow and receding ventrad, cheeks slightly higher than length of profrons and with 2 series of slender bristles along ventral border, third antennal segment about 1.5 times as long as wide, arista minutely haired and slightly thickened at base, palpi slender, occiput swollen on ventral half; mesonotum with acrosticals weak, irregularly paired and in series that are slightly closer to one another than the distance of either to the nearer series of dorsocentral bristles, posthumeral bristle duplicated, prealars about as long as the posterior notopleurals, sternopleurals 2 : 3 including the weak ventral bristles; abdomen teneral, depressed basad and sides slightly convergent caudad, processes well set apart at base, short and broadly maintained distad, apex blunt, with a screen or series of short bristles across basal region, inner border with a loose series of longish setulae proximad and at apex.

Fore tibia with 1 posteroventral, mid femur with 2 or 3 slender posteroventrals, mid tibia with 1 anterodorsal, 1 posterodorsal, 2 posteriors, hind femur with an extensive anteroventral series, bristles shorter on proximal half of femur, with few posteroventrals, hind tibia with 1 anteroventral, 2 anterodorsals, 2 posterodorsals.

Wings with costal setulae and thorns weak, *m-cu* cross vein erect. Length, 4 mm.

HOLOTYPE. ♂, Summit of Luther Pass, El Dorado County, California, V.28.49, *ex Polygonum alpinum* Allioni. (K. E. Frick) UCB. PARATYPE. 1 ♂, same locality and host as holotype, IV.30.49 (K. E. Frick) UCB.

The male of *P. polygonorum* possesses a shiny dark brown thorax, which when seen from above has no stripes on mesonotum. From such related forms the male may be separated by the more prominent profrons and cheeks, and by structure and bristling of processes on sternum 5.

***Pegomya silvicola* Hockett, new species.**

MALE. Blackish, interfrontalia, parafacials and cheeks blackish, parafacials with silvery and interfrontalia and cheeks with whitish pruinescence, first and second antennal segments, articulating surface of third and facial carina at base of antennae, all yellowish, remainder of third antennal segment gray. palpi dark brown; mesonotum and scutellum seen from in front blackish and shiny, the former with 3 darker vittae, seen from behind with light brown dust, pleura gray; abdomen with cinereous pruinescence and dark reflections, with blackish dorsocentral vitta. Fore femora black, mid and hind pairs yellowish brown, tibiae fulvous, tarsi dark brown. Wings clear, tinged basad, calyptrae whitish, knobs of halteres yellow.

Eyes at narrower part of frons separated by a distance not exceeding diameter of anterior ocellus, parafrontals contiguous and with 5 pairs of weak

bristles, profrons and parafacials narrow, cheeks restricted below eye and tapering caudad, postocular setulae short, arista minutely haired; mesonotum with fine paired acrosticals and interserial setulae, the two series widely separated by a distance greater than that between the respective series of acrosticals and dorsocentral bristles, posthumeral bristle duplicated, prealar short, sternopleurals 2 : 2, anterior ventral weak; abdomen short, rather stocky, depressed basad and thickened caudad, apex truncate, processes short, contiguous basad, width well maintained distad, apical margin blunt and rounded, inner margin slightly extended mesad at apex, outer border projecting narrowly as a flat bare flange or marginal plate, base of outer border with several bristles, of which 2 or 3 are long and robust, inner border densely clothed with weak bristles that progressively become shorter and finer from base to apex of processes.

Fore tibia with 1 posteroventral, mid femur with 4 or 5 short posteroventrals, mid tibia with 1 anterodorsal, 1 posterodorsal, 2 posteriors, hind femur with 4 or 5 anteroventrals on distal half, the series continued as much weaker bristles on the proximal half, being setulose, with 2 or 3 short posteroventrals, hind tibia with 1 anteroventral, 2 longer and 6 to 8 short anterodorsals, 2 long and 1 shorter posterodorsal between the longer.

Wings with costal thorns and setulae weak, *m-cu* cross vein slightly oblique and sinuate, lower calyptal scale slightly protruded beyond margin of upper. Length, 5 mm.

HOLOTYPE. ♂, Giant Forest, Tulare County, California, VII.28.29 (R. H. Beamer) HCH.

The male of *P. silvicola* possesses the habitus of *P. winthemi* (Meigen) and *P. mallochi* Hockett, from both of which it differs in having the scutellum entirely blackish and the lower calyptal scale less completely extended beyond the margin of the upper. Further, in the male of *P. silvicola* the palpi are dark brown (yellow in *winthemi*), and the lower posthumeral bristle is present (absent in *P. mallochi*).

***Pegomya sombrina* Hockett, new species.**

MALE. Gray-black, subshining, with yellowish brown pruinescence, parafacials and parafacials silvery, cheeks duller and with dark reflections, interfrontalia black, reddish cephalad, second antennal segment fulvous, third blackish, faintly reddish at base of inner surface, palpi fulvous, fuscous at tip; mesonotum with faint brownish median vitta and dark reflections, postsutural region with yellowish brown pruinescence, scutellum and abdomen concolorous with mesonotum, the latter slightly more densely pruinescent; abdomen with narrow dorsocentral vitta, becoming slightly wider caudad, processes reddish on distal half and along inner border. Fore coxae grayish anteriorly, fore femora largely browned or infuscated, mid and hind pairs

and all tibiae fulvous, tarsi blackish. Wings faintly grayish, tinged basad, calyptrae whitish, knobs of halteres yellow.

Narrower part of frons about equal in width to the distance between the posterior ocelli, interfrontalia uninterrupted caudad, 5 or 6 pairs of slender parafrontal bristles, profrons and cheeks about as long and high respectively as width of third antennal segment, the latter about 1.75 times as long as wide, arista subnude; mesonotum with acrosticals in regular paired series, a stronger mid pair on the presutural region, posthumeral bristle finely duplicated, prealars long; abdomen conically cylindrical, depressed basad, with strong marginal bristles on the terga, processes comparable to those of *P. bicolor* (Wiedeman), broadened, blunt and bare on distal half, glossy thereat and along inner border, with fringe of slender setulae on proximal half, at base with 1 or 2 longish upright bristles.

Fore tibia with a weak anterodorsal and slender mid posteroventral, mid femur with setulose anteroventrals on the proximal third and 2 posteroventrals, mid tibia with 1 short anterodorsal, 1 stronger posterodorsal, 2 short posteriors, hind femur with 5 anteroventrals on the distal two-thirds of femur, 1 mid posteroventral, hind tibia with 1 anteroventral, 2 anterodorsals, 2 long and 1 very short posterodorsals, apical anterior robust, preapical anterodorsal and posterodorsal setulose in type.

Wings with costal setulae and thorns weak, scales of calyptrae subequal.

FEMALE. Slightly paler, interfrontalia entirely reddish, parafacials and cheeks deep red and with light silvery sheen, face gray, scutellum and abdomen gray; frons at vertex slightly wider than one-third diameter of head as viewed from above, caudal pair of ocellar bristles weak and directed forward, cruciate bristles absent, sternopleurals 1 : 2, lower caudal bristle robust; sclerites of ovipositor glossy, terminal appendages with slender setulae; mid tibia with a longer anterodorsal, hind tibia with 3 longer and 1 very short anterodorsal.

LENGTH, 6.5 mm.

HOLOTYPE. ♂, Sacramento, California, V.4.56 (S. M. Fidel) UCD.

ALLOTYPE. ♀, Leavitt Meadow, 7,200 feet, Mono County, VIII.13.63, at flight trap (H. B. Leech) CAS.

The species *P. sombrina* has the habitus of *P. bicolor* (Wiedemann), from which it may be distinguished by the color of the abdomen and thorax, longer prealar bristle, more regularly paired acrosticals in series that are more widely separated from one another.

***Pegomya umbripennis* Hockett, new species.**

MALE. Gray, interfrontalia black, parafacials and cheeks blackish, with whitish pruinescence, second antennal segment blackish or rufous, third black, palpi reddish brown, fuscous apicad; mesonotum brownish, seen from in front

with a median streak and two obscure sublaterals, seen from behind markings similar to those of *P. polygonorum* (p. 265), the stripes obscurely continued caudad on the postsutural region, scutellum brownish, pleura gray; abdomen gray, with a blackish dorsocentral vitta, hypopygium grayish black. Femora blackish, tibiae rufous, tarsi dark brown.

Wings grayish, brownish tinged basad, veins chocolate brown. calyptrae hyaline, knobs of halteres purplish tinged.

Narrower part of frons about as wide as the distance between posterior ocelli, interfrontalia linear caudad, separating parafrontals, latter with 5 or 6 pairs of bristles, profrons prominent, cheeks broad, parafacials narrow and receding ventrad, antennae pendant, third antennal segment broad, slightly wider than height of cheek, nearly 1.5 times as long as broad, arista minutely haired and is thickened at base; mesonotum with weak paired acrosticals, mid presutural pair stronger, series closer to one another than each to their respective series of dorsocentral bristles, posthumeral bristle duplicated, prealars short, sternopleurals 2 : 3, ventral bristles being weak; abdomen short, depressed basad, thickened caudad, blunt at apex, sides slightly converging caudad, processes widely set apart at base, slender and tapering to a blunt point at apex as viewed laterad, inner margin partly polished and at apical region extended mesad as flattish semicircular flange or shelf, and on proximal half with a series of slender setulae, outer border of processes with bristles progressively becoming longer from base to apical region. Fore tibia with 1 posteroventral, mid femur with a few proximal posteroventrals, mid tibia with 1 anterodorsal, 1 posterodorsal, 2 posteriors, hind femur with a full series of slender anteroventrals, basal bristles shorter, 1 or more posteroventrals, hind tibia with 1 or 2 anteroventrals, 2 anterodorsals, 2 posterodorsals.

Wings with costal setulae and thorns weak, *m-cu* cross vein erect.

FEMALE. Interfrontalia, parafacials and cheeks extensively turkey red and filmed with whitish pruinescence as viewed from in front, occiput gray; thorax gray, mesonotum with a trace of brownish stripes along planes of dorsocentral bristles; abdomen gray, unmarked. Fore femora blackish, mid and hind pairs fulvous and with a trace of clouding or cuticular darkening, tibiae fulvous: frons at vertex as wide as distance between first pair of dorsocentral bristles, parafrontals narrow, interfrontalia broad, at middle of frons as wide as length of third antennal segment, caudal pair of ocellar bristles weak, upright and inclined forward, cruciate bristles absent, sternopleurals 2 : 2, lower caudal bristle longer than half length of upper; abdomen with a few discal bristles laterad on tergum 5, sclerites of ovipositor grayish, dull. Fore tibia with 1 anterodorsal and 1 posteroventral, mid tibia with or without weak anteroventral, mid femur with prebasal anteroventral, hind femur with 1 or 2 slender posteroventrals. Knobs of halteres yellow (allotype) or purplish tinged.

LENGTH, 4 mm.

HOLOTYPE. ♂, Glendale, Los Angeles County, California, XII.21.50 (E. I. Schlinger) UCB. ALLOTYPE. ♀, Monrovia Canyon, Los Angeles County, California, III.27.32 (C. H. Martin) UCB. PARATYPES. CALIFORNIA: 1 ♂, San Francisco, III.15.08 (E. C. Van Dyke) CAS; 1 ♀, Redwood City, San Mateo County, III.21.48, 1 ♂, Stanford University, Santa Clara County, II.7.51 (both P. H. Arnaud) PHA. WASHINGTON: 1 ♂, Fort Lewis, Pierce County, IV.6.46 (P. H. Arnaud) PHA.

The male of *P. umbripennis* may be recognized by the peculiar structure and bristling of processes to sternum 5. In the female specimens before me the mid and hind femora, in contrast to those of the male, are largely fulvous, a color character that is capable of wide variation in related forms, tergum 5 has a few upright discal bristles, and as in the male knobs of halteres may be purplish tinged.

***Pegomya valida* Hockett, new species.**

MALE. Black, parafacials and cheeks reddish and with velvety brownish pruinescence, interfrontalia reddish cephalad, and with a film of whitish dust, face brownish black, occiput gray, second antennal segment rufous, third black; mesonotum with sparse whitish pruinescence and dark reflections, viewed from behind with 3 vittae, declivities blackish, scutellum shining black laterad and with pale subtriangular mark on disc; abdomen more densely whitish gray, with a narrow dorsocentral vitta on terga 3, 4, 5, each section slightly dilated at the anterior margin of the tergum, hypopygium subshining, blackish. Femora blackish, narrowly reddish at apical region, tibiae fulvous, tarsi dark brown, pulvilli browned. Wings grayish tinged, slightly denser basad, calyptrae whitish, halteres purplish.

Frons at narrower part slightly wider than breadth of third antennal segment, interfrontalia thereat about as wide as the latter, parafrontals with 10 to 12 pairs of slender bristles, series extending caudad to level with apex of ocellar triangle, verticals and postocular setulae slender, profrons and cheeks about as wide and high respectively as the width of the third antennal segment, parafacials well maintained in width ventrad, epistoma extended cephalad to a level with tip of profrons, vibrissal angle with numerous stiff black setulae, arista subnude; mesonotum with a strong mid pair of presutural acrosticals, posthumeral bristle duplicated, prealars long, notopleural depression with setulae, sternopleurals 2 : 2 or 3; abdomen conical, tergum 6 with few weak bristles, anal segment (tergum 9) not prominent, sterna sparsely bristled, processes slender, fringed on inner margin with weak hairs, outer border weakly bristled.

Fore tibia with 1 anterodorsal, 2 posteroventrals, preapical posterodorsal well developed, mid femur with a proximal series of anteroventrals and posteroventrals, the latter continued on distal half of femur as slender setulae and

accompanied throughout by a series of similar setulae immediately dorsad, with a short anteroventral on the distal half of the femur, mid tibia with 1 robust anterodorsal and posterodorsal respectively, with 1 posterior and 2 posteroventrals, hind femur with a full series of longish anteroventrals and proximal posteroventrals, hind tibia with 2 anteroventrals, 2 anterodorsals, 2 posterodorsals, apical anteroventral duplicated, tarsi slender, pulvilli short.

Wings with costal setulae weak, costal thorn as long as humeral cross vein, *m-cu* cross vein oblique and sinuate.

FEMALE. Mesonotum more densely pruinulent and with a trace of brownish infuscation, abdomen more grayish and shiny, with a weak dorsocentral marking; frons at vertex wider than distance between first pair of dorsocentral bristles, interfrontalia uniformly broad and at middle of frons as wide as length of antenna. Fore tibia with 1 posteroventral.

LENGTH, 10 to 11 mm.

HOLOTYPE and ALLOTYPE. ♂, ♀, Parkdale, Oregon, III.31.36 (K. Gray, J. Schuh) CAS. PARATYPES. 1♂, Trinita, Sonoma County, California, III.26.37 (N. W. Frazier), 1♀, Mountain Home Canyon, San Bernardino County, California, VII.16.21 (F. R. Cole) UCB.

The species *P. valida* belongs to the *P. major*-group within the genus and is noteworthy on account of the prominence of parafacials and epistoma, the former having a straightish anterior margin and the latter densely beset with stiff short setulae on the vibrissal angle. The mid femur has 4 or 5 anteroventral bristles on the proximal half, as in *P. thrixia* Hockett, from which species *P. valida* differs in having longer anteroventral and posteroventral bristles on the hind femur, and in the absence of setulae on the parafrontals opposite the ocellar callosity.

Pegomya affinis fuscopunctata Hockett, new subspecies.

(Figures 6, 11, and 19.)

The species *Pegomya affinis* Stein occurring in the western states of California, Oregon, and Washington is notably different from the form present in many other parts of North America in that the abdomen possesses fuscous spots outlined laterad on the dorsum of the terga. For such taxa I propose the subspecies name "*fuscopunctata*."

Of 20 male and 45 female specimens examined 2 males and 10 females have the palpi infuscated at the apex and 4 females have humeral callosities yellowish. The copulatory appendages of the male are illustrated in figures 6, 11, 19. The subspecies is recorded in the various collections from nearly 100 localities in California and from 30 counties.

HOLOTYPE and ALLOTYPE. ♂, ♀, Palm Springs, Riverside County, California, I.14.53 (P. H. Arnaud) PHA.

***Pegomya bicolor defecta* Hockett, new subspecies.**

MALE. The subspecies *P. b. defecta* is structurally similar to *P. b. bicolor* (Wiedeman), from which it differs notably in the fuscous coloration of wings and calyptrae. The frontal vitta and antennae are blackish, parafacials and cheeks with seal brown pruinescence, palpi reddish to brownish tinged, mesonotum and scutellum blackish. The parafacials in profile are reduced to lineal dimensions for the greater part.

HOLOTYPE. ♂, La Honda, San Mateo County, California, IV.3.49 (P. H. Arnaud) PHA. PARATYPE. 1♂, Tillamook, Oregon, III.26.19 (A. C. Burrill) HCH.

***Pegomya setiventris flavivaria* Hockett, new subspecies.**

The California specimens of the subspecies *P. s. flavivaria* agree in many respects with specimens described recently by me as *P. s. setiventris* occurring in Alaska and Alberta. There are however certain differences or variations between the two series pertaining to color, which I hold to be significant and are stated in the following comparison.

The head of the male of *P. s. flavivaria* has the third antennal segment partly yellowish, palpi entirely yellow or fulvous, and as in *P. s. setiventris* each palpus is scarcely longer than the third antennal segment; thorax in the male of *P. s. flavivaria* entirely yellow; abdomen yellow, reddish yellow, or partly blackish, with or without trace of dark posterior incisures on one or more terga, and as in the male of *P. s. setiventris* the bristling is notably more profuse and longer laterad on the dorsum than that mesad. The hind tibia in the male of *P. s. flavivaria* has a mid anteroventral bristle, in contrast to its absence in the holotype of *P. s. setiventris*.

In comparison, all specimens of *P. s. setiventris* from the above northern regions have the third antennal segment entirely blackish, palpi infuscated on distal half, mesonotum gray except for partly yellowish humeral callosities and scutellum, abdomen with dark tergal incisures.

HOLOTYPE. ♂, Plaskett Meadows, NW. corner of Glenn County, California, VII.28.60 (H. B. Leech) CAS. PARATYPES. CALIFORNIA: 1♂, Susan River Camp, Lassen County, VII.9-10.49 (A. T. McClay) UCD; 1♂, Giant Forest, Tulare County, VII.23.23 (C. L. Fox) CAS.

***Hydrophoria pilipyga* Hockett, new species.**

MALE. Black, shiny, interfrontalia in type reddish, with pale pruinescence when seen from below, parafacials and cheeks deep red and velvety when seen from above, antennae black, palpi blackish, proboscis polished; mesonotum seen from in front with brownish dust, seen from behind with a broad black median vitta and blackish declivities, scutellum blackish; abdomen lustrous, with whitish pruinescence and a narrow black dorsocentral vitta, basal sclerite

of hypopygium drab on dorsum, black and polished laterad. Legs blackish, mid and hind tibiae more or less tinged with rufous. Wings clear in type, veins dark brown, calyptrae whitish, knobs of halteres purplish.

Eyes at narrower part of frons separated by a distance about equal to that between the posterior ocelli, parafrontals separated by linear interfrontalia caudad, series of bristles continued to level with apex of ocellar triangle, caudal pairs setulose, parafacials and broader part of cheek below eye slightly less in width and height respectively than width of third antennal segment, longer arisal hairs longer than half the width of the third antennal segment, palpi slender; mesonotum with two series of fine hairlike acrosticals and interserial hairs shorter, prealars short, notopleural depression hairless, hypopleura with a few hairs on the upper border cephalad of the spiracle, sternopleurals 2 : 2, ventral anterior bristle weak; abdomen plump and stocky, marginal bristles of tergum 5 long and slender, basal sclerite of hypopygium with several fine short bristles, anal sclerite with short fine setulae, anal cleft much reduced and small, cerci with a dense tuft of fine hairs, gonostyli viewed laterad broad throughout, slightly longer than wide, apical margin truncate and rounded, processes of sternum 5 short and tapering apicad as viewed in profile, clothed with fine slender setulae and with a tuft of fine hairs at base of each inner border.

Fore tibia with a weak mid anterodorsal, 1 fine posteroventral, mid femur with 2 or 3 short prebasal anteroventrals, 5 or 6 slender posteroventrals on proximal half, mid tibia with 2 anteroventrals, 1 strong anterodorsal, 2 posteroventrals, 2 weak posteriors, 1 posteroventral, hind femur with a full series of slender anteroventrals, bristles shorter at base which has several accessory bristles, with 5 or 6 fine posteroventrals, many of which are not longer than the height of the femur where situated, hind tibia with 4 anteroventrals, 3 longer and 4 or 5 short anterodorsals, 3 posterodorsals.

Wings with costal setulae and thorns weak, *m-cu* cross veins oblique and sinuate.

HOLOTYPE. ♂, Kings Creek Meadow, Lassen National Park, Shasta County, California, VII.23.50 (P. H. Arnaud) CAS.

The male of *H. pilipyga* may be separated from allied forms, having only shortened setae clothing anal segment of male, by the dense tuft of fine short hairs on the cerci. In the type specimen most of the posteroventral bristles on the hind femora are short and weak.

Hydrophoria rotundata Hockett, new species.

MALE. Black, subshining, head and its appendages blackish, interfrontalia seen from below with whitish pruinescence, parafrontals seen from above silvery, cheeks whitish, proboscis polished; mesonotum seen from in front with sparse brownish dust, seen from behind with broad black median vitta

and blackish declivities, scutellum black; abdomen black, lustrous, with scant whitish pruinescence and a blackish dorsocentral vitta, the latter gradually tapering caudad, basal sclerite of hypopygium polished, black. Legs black, pulvilli white. Wings clear, calyptae white, halteres purple.

Eyes at narrower part of frons separated by a distance equal to that between posterior ocelli, parafrontals separated caudad by linear interfrontalia, series of bristles continued caudad to a level with apex of ocellar triangle, profrons about as long and parafacials slightly narrower than width of third antennal segment, cheeks foreshortened below eye, tapering sharply caudad, jowl or bucca and vibrissal border well bristled, longer arisal hairs nearly as long as width of third antennal segment; mesonotum and scutellum profusely setulose, acrosticals and interserial setulae slender and diffuse, prealars short, notopleural depression hairless, hypopleura with hairs on upper border cephalad of spiracle, sternopleurals 1 : 2; abdomen short and plump, truncate at apex, terga 4 and 5 clothed with much longer bristles and setulae than on terga 1 + 2 and 3, basal sclerite of hypopygium with several fine shorter bristles on dorsum, anal sclerite with short fine bristles that become increasingly coarse and dense caudomesad, gonostyli sharply attenuated and pointed at apex, processes of sternum 5 similar to those of *H. altilega* Hockett, broad at base and tapering distad, weakly bristled and with a fringe of slender setulae on proximal half of inner border.

Fore femur with a median series of longish setulae on anterior surface, fore tibia with weak anterodorsal, 1 or 2 posteroventrals, mid femur with an extensive series of shorter slender anteroventrals, and longer posteroventrals on the proximal half, bristles becoming finer and shorter distad, mid tibia with 1 anteroventral, 1 anterodorsal, 1 longer and 1 shorter posterodorsal, 2 or 3 short proximal posteriors, 1 posteroventral, hind femur with a full series of long anteroventrals, with a duplicating series on the proximal two-thirds, with fine slender posteroventrals, hind tibia with 4 or 5 anteroventrals, 2 longer and 7 or 8 shorter anterodorsals, 3 or 4 posterodorsals.

Wings with costal setulae weak, costal thorns short, *m-cu* cross veins oblique and sinuate, lower calyptral scale protruded beyond margin of upper.

FEMALE. Interfrontalia with a reddish patch at base of antennae, blackish caudad, parafrontals brownish, slightly puffy caudad and thereat profusely setulose, interfrontalia with a robust and weak pair of cruciate bristles, caudal pair of ocellar bristles lengthy and directed outward, parafacials and cheeks fully as broad and high respectively as width of third antennal segment; mesonotum and scutellum less profusely setulose, scutellum paler laterad; abdomen with a partial series of discal bristles on tergum 4 and with several on tergum 5, terminal sclerites of ovipositor with fine setulae. Mid femur with anteroventrals and posteroventrals shorter and less profuse, mid tibia with one bristle on the anteroventral, anterodorsal, posterodorsal and posteroventral

respectively, and 2 posteriors, hind femur with single series of anteroventrals, and lengthy posteroventrals.

LENGTH, 6 to 7 mm.

HOLOTYPE. ♂, Hat Lake, Lassen National Park, Shasta County, California, VI.14.41 (C. D. Michener) USNM. ALLOTYPE. ♀, Ellery Lake, Tioga Pass, 9,400 feet, Tuolumne County, California, VII.3.27 (J. M. Aldrich) USNM. PARATYPES. 1 ♂, McBride Campground, 4 road miles E. of Shasta City, Siskiyou County, California, VII.23.62 (D. C. Rentz, C. D. MacNeill) CAS; 1 ♂, Fish Lake, 7,000 feet, Steens Mountains, Oregon, VII.11.27 (H. A. Scullen) HCH.

The males of *H. rotundata* and *H. pilipyga* (p. 272) are of similar habitus, both having a short rotund abdomen and extensive series of parafrontal bristles that continue caudad as bristles of a setulose nature. The males of the two species may be separated by differences in the bristling and structure of copulatory appendages.

Leucophora haustellaris Hockett, new species.

MALE. Parafrontals, parafacials and cheeks whitish pruinulent, the latter two with reddish reflections, interfrontalia whitish pruinulent when seen from below, region of vertex brownish, occiput gray, antennae blackish, palpi dark brown, haustellum dull; mesonotum and scutellum brownish, shiny, the former with faint median stripe; abdomen drab, shiny, with brown dorsocentral vitta, which when viewed from behind becomes obscured on anterior half of terga 3, 4, 5 owing to a dark patch of shifting or reflective nature, caudal margins of terga pale brown. Femora grayish black, tibiae brown, tarsi dark brown. Wings faintly tinged, brownish basad, calyptrae tinged, knobs of halteres dull yellow.

Head with narrower part of parafrontals about as wide as distance between posterior ocelli, interfrontalia uninterrupted caudad and without cruciate setulae, parafrontals with 7 pairs of weak bristles, the series extended caudad to level with apex of ocellar triangle, caudal pair of bristles proclinate, parafacials slightly wider throughout than width of third antennal segment, cheeks tapering caudad below eye, buccal region broad and vibrissal angle protruded cephalad to a level beyond tip of profrons, marginal bristles weak, third antennal segment slightly longer than broad, arista minutely haired, palpi slender, haustellum slim; mesonotum and scutellum largely devoid of setulae, acrosticals weak, paired, and in 2 close series, lower duplicating posthumeral bristle and prealars absent, sternopleurals 1:2, prosternum bare; abdomen conical, bristles on dorsum weak, stronger laterad, processes of sternum 5 tapering distad, weakly bristled.

Legs weakly bristled and moderately slender. Fore tibia with 1 posteroventral, mid femur with 1 prebasal anteroventral and a proximal series of posteroventrals, mid tibia with 1 anterodorsal, 1 longer posterodorsal, 2

posteriors, hind femur with full series of 8 or 9 anteroventrals, which become shorter proximad, with a proximal series of setulose posteroventrals, hind tibia with 3 anteroventrals, 2 or 3 anterodorsals, 2 or 3 posterodorsals, 3 or 4 posterior setulae.

Wings with costal setulae and thorns minute, veins R_{4+5} and M_{1+2} parallel to wing margin, *m-cu* cross vein semierect, calyptrae subequal.

LENGTH, 3.75 mm.

HOLOTYPE and PARATYPE. 2♂♂, Mill Valley, Marin County, California, III.7.24 (M. C. Van Duzee) CAS.

Leucophora innupta Hockett, new species.

FEMALE. In color and chaetotaxy resembling *L. maculata* (Stein), except that abdomen is more extensively and heavily marked on dorsum. The frons is wider than in *L. maculata*, becoming broader caudad than length of third antennal segment, profrons and cheeks varying from as long and high respectively to less in these respects than width of third antennal segment, haustellum short, prealar bristle absent or pilose. Ovipositor with robust recurrent spinules on anal palpi. Wings slightly brownish or smoky.

LENGTH, 3 to 4 mm.

HOLOTYPE. ♀, Barton Flat, South Fork Camp, San Bernardino Mountains, California, IX.12.44 (A. L. Melander) USNM. PARATYPES. CALIFORNIA: 1♀, Tassajara, Contra Costa County, VIII.15.39 (G. E. Bohart) 1♀, Lone Pine, Inyo County, V.21.37 (E. C. Van Dyke) 1♀, Pleyte, Monterey County, V.21.20 (E. P. Van Duzee) 1♀, La Mesa, San Diego County, IV.11.33 (F. X. Williams) all CAS; 1♀, 3.5 miles W. of Gordons Wells, Imperial County, IV.10.57, 2♀♀, Riverside, Riverside County, III.24.57 (both E. I. Schlinger) 1♀, Tanbark Flat, Los Angeles County, VI.17.56, 1♀, Carnelian Bay, Lake Tahoe, Placer County, VI.17.58, 1♀, Sagehen, near Hobart Mills, Nevada County, VII.9.54, 1♀, Independence Lake, Sierra County, VII.27.56, 1♀, Hallelujah Junction, Lassen County, VI.28.62, 1♀, Davis, Yolo County, VI.17.58 (all R. M. Bohart) 1♀, 2 miles N. of Blue Lakes, Alpine County, VII.17.60 (C. G. Moore) 9♀♀, Sonora Pass, 9,624 feet, Mono County, VIII.20.60 (A. S. Menke) all UCD. OREGON: 1♀, Kiger Island, VI.11.25 (J. Wilcox) 1♀, Lake of the Woods, Klamath County, VII.20.30, 1♀, Sun Creek Meadows, Crater Lake Park, 6,500–7,000 feet, VIII.8.30, 1♀, Devils Lake, 5,445 feet, Deschutes County, VIII.8.35 (all H. A. Scullen) USNM: 1♀, Hat Point, Wallowa County, VII.30.41 (M. and R. E. Rieder) HCH. IDAHO: 1♀, Clementsville, VII.22.26 (R. W. Haegele) USNM. NORTH-WEST TERRITORIES: 1♀, Reindeer Depot, Mackenzie Delta, VIII.13.48 (J. R. Vockeroth) CNC.

I have had many of these specimens on hand for several years expecting that eventually the male would be found. Nothing has as yet been recognized

as such by me. Hence, I am taking this opportunity of making known the species as represented by the female sex.

Leucophora megacephala Hockett, new species.

FEMALE. Interfrontalia reddish on cephalic half, parafrontals brownish caudad, and gray on cephalic half, parafacials dull and with large brownish fascia at base of antennae, cheeks largely reddish and with sparse whitish pruinescence, second antennal segment reddish along distal border, third segment blackish, arista orange, blackish at base, palpi brown, haustellum dull; thorax gray and with brownish markings on dorsum and mesopleura, mesonotum with dark stripes along planes of dorsocentral bristles, scutellum gray laterad; abdomen gray with brownish marks on dorsocentral plane and laterad on anterior half of terga 3, 4, 5. Wings yellowish brown, veins reddish brown, membrane paler or partly clear basad, calypterae whitish, with brownish marginal hairs, halteres purplish.

Head with frons at vertex slightly wider than one-third maximum diameter of head as seen from above, interfrontalia at middle of frons wider than length of third antennal segment, cruciate bristles present, parafrontals with 7 or 8 pairs of short bristles, profrons slightly shorter in length than diameter of eye immediately caudad, height of cheek slightly less than that of eye, parafacials about as broad as length of second and third antennal segments, arista subnude, slightly swollen at base, palpi slender, proboscis stocky; mesonotum with closely set mid pair of presutural acrosticals, lower duplicating posthumeral bristle present, notopleural depression without setulae, prealars about as long or slightly longer than the posterior notopleurals, sternopleurals 2:2, prosternum bare; abdomen lengthy and gradually tapering caudad, being fully as long as thorax, with slender marginal bristles and discal setulae, terminal sclerites of ovipositor with recurrent spinules.

Fore femur with median series of longish setulae on anterior surface, fore tibia with 4 bristles at apex including a weak preapical anterodorsal, with a weak mid anterodorsal and a slender mid posteroventral, mid femur with 2 weak prebasal anteroventrals, 6 or 7 slender posteroventrals, mid tibia with 1 mid anteroventral, 1 anterodorsal, 2 posterodorsals, 3 posteriors, hind femur with 6 or 7 slender anteroventrals and 4 or 5 weaker posteroventrals, the series in each case terminating near the base in fine setulose setae, hind tibia with 3 anteroventrals, 4 or 5 anterodorsals, 4 posterodorsals, and with or without 1 short posterior setula, preapical posterodorsal weak.

Wings with costal setulae and thorns weak, veins R_{4+5} and M_{1+2} slightly divergent near wing margin, *m-cu* cross vein semierect and slightly sinuate, calypterae subequal. Length, 9 mm.

HOLOTYPE. ♀, Humboldt County, California, V.14.11 CAS.

The female of *L. megacephala* is conspicuous on account of its size and the prominence of the profrons, parafacials and cheeks.

Schoenomyza lispina nigriceps Hockett, new subspecies.

MALE. Related to *S. lispina* (Thomson) (= *S. convexifrons* Malloch). Head brownish, thorax and abdomen grayish and marked as in *S. lispina*. Frons and face deep seal brown, the former when seen from in front with golden sheen, parafacials and cheeks slightly paler, antennae black, palpi fuscous; frons about as wide at vertex as its total length, parafrontals with 2 pairs of parafrontal bristles and one pair of recurrent paraorbitals. Legs grayish black and with normal bristling, as in *S. lispina*. LENGTH, 3 mm.

HOLOTYPE. ♂, Humboldt or Siskiyou County, California, May or June, 1911 (Oldenberg Collection) CAS. PARATYPE. 1♂, same data as holotype, on same mount with holotype, abdomen excised.

The male of *S. nigriceps*, as represented by the types, differs notably from that of *S. lispina* (*sensu S. convexifrons* Malloch) in coloration of head, being entirely deep seal brown or blackish.

Coenosia (Limosia) fontana Hockett, new species.

MALE. Gray, head with dull golden yellow tinge, occiput gray, interfrontalia lightly dusted and with brownish sheen when viewed from in front, second antennal segment gray and with pale yellowish apical spot, third segment entirely yellow, first and second arisal segments yellow, third brown, palpi yellow; thorax gray, mesonotum with yellowish tinge, unmarked; abdomen whitish gray, unmarked, hypopygium partly yellowish, dorsal (cephalic) border of anal segment (tergum 9) polished. Legs yellow. Wings and calyptres hyaline, knobs of halteres pale yellow.

Frons at middle as wide as distance between first pair of dorsocentral bristles, anterior pair of ocellar bristles weak, third antennal segment short, distance from its apex to oral margin equal to its width, parafacials narrow, linear ventrad, cheeks as high as width of third antennal segment, arista short pubescent to tip; mesonotum with stiffish setulae on anterior surface of humeral callosities, with stubby pronotal pair of dorsocentral setulae, basal pair of scutellar bristles shorter than half length of apical pair; abdomen conical, with short marginal and discal bristles, hypopygium and processes of sternum 5 weakly and sparsely bristled.

Legs weakly bristled; fore tibia with a mid posterior, mid femur without a preapical anterior, mid tibia with a setulose anterodorsal, 1 posterior, apical posteroventral weak, shorter than apical diameter of tibia, hind femur with 1 robust preapical and 2 weak basal anteroventrals, 1 mid and 1 basal posteroventral, hind tibia with a mid anteroventral and anterodorsal, preapical mid dorsal set at a level slightly basad of the preapical anterodorsal.

Wings with weak costal setulae, ultimate section of veins R_{4+5} and M_{1+2} subparallel to wing margin, the latter nearly 2.5 times as long as the penultimate section, lower calyptral scale slightly longer than upper.

FEMALE. Head with parafrontals, parafacials, cheeks and face yellowish gray, interfrontalia reddish cephalad, darker caudad, mesonotum whitish gray, with or without yellowish tinge; cheeks scarcely as high as width of third antennal segment; abdomen subovate. Legs with stronger bristling, mid tibia with a lengthy anterodorsal, apical posteroventral robust, as long or longer than the apical diameter of the tibia, hind femur with 3 widely spaced anteroventrals.

LENGTH, 3.5 mm.

HOLOTYPE. ♂, Victorville, San Bernardino County, California, V.20.55 (W. R. Richards) CNC. ALLOTYPE. ♀, Deep Springs, Inyo County, California, X.13.51 (E. L. Kessel) CAS. PARATYPES. ♀, Saratoga Springs, Death Valley, Inyo County, California, V.30.53 USNM; ♀, Glenwood, Utah, VIII.12.36 (D. R. Lindsay) HCH.

The species *C. fontana* may be distinguished from similar forms by the weak pair of basal scutellar and anterior pair of ocellar bristles. In the holotype the head capsule, except for the occiput, is notably dull golden yellow; in both sexes the entire third antennal segment and palpi are yellow.

Coenosia (Neodexiopsis) hilaris Hockett, new species.

MALE. Pale gray, interfrontalia with sparse yellowish brown pruinescence, parafacials and cheeks silvery, apical border of second antennal segment and entire third yellow, palpi yellowish to brown; thorax whitish gray, mesonotum with or without trace of brownish vittae; abdomen yellowish testaceous basad and partly so ventrad, terga 4 and 5 mostly gray and each with a pair of weak brownish spots and a faint darker dorsocentral streak, terga 1 + 2 and 3 darkened along median plane, or blackish, tergum 3 occasionally with trace of paired spots, hypopygium with basal sclerite grayish, anal sclerite and sternum 5 yellowish. Legs yellow, tarsi brownish. Wings hyaline, calyptrae whitish, halteres yellow.

Frons at vertex slightly wider than the distance between the first pair of dorsocentral bristles, frontal bristles slender, anterior pair of ocellar bristles rather short, posterior pair directed outward, parafacials narrow, cheek as high to slightly less so than the width of the third antennal segment, distance from apex of antennae to oral margin fully equal to width of third antennal segment, arista minutely pubescent; mesonotum with anterior setulae on humeral callosities stiff and erect, pronotal pair of dorsocentral setulae spinulose; abdomen conical, compact, with weak discal bristles on terga 4 and 5, hypopygium and processes of sternum 5 sparsely and weakly bristled.

Legs slender and with sparse slender bristles, fore tibia with 1 posterior, mid femur with 1 or 2 mid anteriors, 1 or 2 weak prebasal anteroventrals, 2 or 3 longish posteroventrals, mid tibia with mid anterior and posterior, apical posteroventral weak, hind femur with 4 widely spaced anteroventrals, 3 posteroventrals, hind tibia with 1 anteroventral, 1 anterodorsal, mid posterodorsal absent in the type, tarsi slender.

Female darker gray, dorsum with sparse yellowish brown pollen, third antennal segment grayish tinged on distal half, palpi brown, mesonotum with 3 faint brownish stripes; abdomen gray, with or without yellowish tinge basad, with weak paired spots on terga 3, 4, 5, and that may become very faint on tergum 5, with or without a dark dorsocentral streak. Legs colored and bristled as in male type.

LENGTH, 3.75 mm.

HOLOTYPE and ALLOTYPE. ♂, ♀, Sunnyside Canyon, W. side of Huachuca Mountains, 6,000 feet, Cochise County, Arizona, VIII.4.52 (H. B. Leech) CAS. PARATYPES. ARIZONA: 2 ♂♂, 2 ♀♀, same data as holotype; 1 ♀, same locality as holotype, VII.9.40 (R. H. Beamer) HCH; CALIFORNIA: 2 ♂♂, 1 ♀, Victorville, San Bernardino County, V.2.53 (G. A. Marsh, R. O. Schuster) UCD; 1 ♀, same locality, V.20.55 (W. R. Richards) CNC; 1 ♀, Deep Spring Lake, Inyo County, VI.14.60 (H. K. Court) UCD; 1 ♀, Owens River, Inyo County, no date, CAS.

The species *C. hilaris* is common with *C. pectoralis* Hockett and *C. basalis* (Stein) has the abdomen in male yellowish testaceous basad. All the recorded specimens of *C. hilaris* lack the mid posterodorsal on the hind tibia except a male paratype from Arizona, and thereby usually differ from *C. pectoralis* and *C. basalis*. Further in *C. hilaris* the third antennal segment is entirely yellow in male and partly so in female.

Coenosia (Neodexiopsis) setilamina Hockett, new species.

MALE. Gray-black, interfrontalia and inner border of parafrontals lightly brownish dusted, ocellar triangle brownish, parafacials and cheeks whitish, antennae grayish black, second segment with reddish dorsal spot, palpi dark brown; mesonotum with dark streaks along planes of dorsocentral bristles; abdomen with a pair of widely separated brownish marks on terga 3, 4, 5, hypopygium and processes darker gray, anal segment polished on ventral border. Coxae and fore femora blackish, mid and hind femora and all tibiae fulvous, hind femora with a brownish abraded marking ventrad on distal half of anteroventral and posteroventral surfaces, tarsi brown. Wings clear, faintly yellowish basad, upper scale of calyptrae so tinged, lower hyaline, halteres with knobs yellow.

Frons at middle about one-third maximum diameter of head as seen from above, at vertex slightly narrower, ocellar triangle seen from behind slender

and faintly extended to anterior border of interfrontalia, inner verticals robust, outer pair shorter and weaker, parafrontals with 2 pairs of recurrent par-orbitals and 5 pairs of diverse parafrontal bristles, anterior pair weak, ocellar bristles slender, caudal pair outwardly directed, palpi fuscous, profrons and cheeks wider and higher respectively than width of third antennal segment, the latter slender, nearly 3 times as long as wide, and is pointed at apex of dorsal (upper) margin, vibrissae strong and with 1 or 2 setulae immediately dorsad, arista minutely pubescent; mesonotum with one strong pair of pre-sutural dorsocentrals, and a weaker slender pair cephalad, about half the length of the stronger pair, lower stigmal bristle curved downward, scutellar bristles long; abdomen compressed laterad and deep, increasingly so caudad, terga 4 and 5 with discal bristles and also laterad on tergum 3, marginal bristles weak except dorsal pair on tergum 5, anal segment protruded, subglobose or knoblike, processes laminate and lengthy, with dense long bristles along entire inner (ventral) border.

Fore tibia with a mid posteroventral, preapical posterodorsal well developed, mid femur with anteroventrals and posteroventrals on the proximal half, with a preapical anterior, mid tibia with 1 long and 1 short anterior and posterior respectively, hind femur with 5 anteroventrals, 1 long mid posteroventral and a weaker posteroventral proximad, with a preapical anterior and posterior, hind tibia with 1 anteroventral, 1 long and 1 short anterodorsal and posterodorsal respectively, also a few coarse anterodorsal and posterodorsal setulae, preapical posterodorsal as long as the preapical anterodorsal.

Wings with veins R_{4+5} and M_{1+2} divergent at wing margin, *m-cu* cross veins erect.

FEMALE. Paler than male, subshining, palpi slender, proboscis polished; dorsum of thorax and abdomen faintly brownish tinged, pleura gray, abdomen with paired roundish reddish brown spots on terga 4 and 5, and usually on tergum 3; coxae grayish black, concolorous with thorax, fore femora blackish, yellowish at apex, mid and hind femora and all tibiae fulvous, hind femora marked as in male, and in bristling of femora and tibiae similar. Knobs of halteres yellow.

LENGTH, 5 to 6 mm.

HOLOTYPE. ♂, Bijou, El Dorado County, California, VI.24.53 (P. H. Arnaud) CAS. ALLOTYPE. ♀, Cache Junction, Utah, VI.11.34 (G. F. Knowlton, W. P. Nye) CAS. PARATYPES. CALIFORNIA: 1 ♀, Cottonwood Creek, 9,300 feet, Mono County, VII.10.61 (J. S. Buckett) 1 ♂, 1 ♀, North Lake, Inyo County, VI.30.61 (J. S. Buckett) UCD. OREGON: 1 ♀, Elgin, VI.20.32 (A. L. Levett) CAS. UTAH: 1 ♀, Petersboro, VI.11.38, 1 ♀, Trenton, VI.11.38 (both G. F. Knowlton, W. P. Nye) HCH.

The species *C. setilamina* may be readily separated from those belonging to the subgenus *Neodexiopsis* by the bristling of the mid and hind tibiae. The

male is notable for the subglobose conformation of the anal segment and the dense bristling on the inner border of processes.

***Phyllogaster albinepennis* Hockett, new species.**

FEMALE. Pale gray and devoid of marking, or only faintly so, on thorax and abdomen. Mesonotum with 4 pairs of postsutural dorsocentrals. Legs gray-black, tarsi and palpi dark brown. Similar to the female of *P. unica* (Stein) from which *P. albinepennis* may be distinguished, as females, by the whitish wings, absence of subanal recurrent spinules on ovipositor, presence of a mid posterior on the fore tibia, absence of an anterior on the mid tibia, presence of 2 anterodorsals on the hind tibia, and by its slightly larger size, averaging 5 mm. in length.

HOLOTYPE. ♀, Thousand Palms, Riverside County, California, III.13.55 (J. E. H. Martin) CNC. PARATYPE. CALIFORNIA: 1♀, same locality as holotype, III.18.55 (W. R. M. Mason) CNC; 1♀, Hunter's Spring, Riverside County, V.10.52 UCB; 1♀, Trona, San Bernardino County, IV.25.37, on creosote bush (F. B. Foley) CAS.

***Lispocephala acuticauda* Hockett, new species.**

MALE. Gray-black, subshining, interfrontalia blackish, frontal triangle densely pruinulent, reaching anterior border of frons, parafacials silvery pruinulent, second antennal segment fulvous, third gray-black, yellowish tinged at base of inner surface in type, palpi yellow; mesonotum with brownish stripes along series of dorsocentral bristles, and weakly so along median plane in paratype; abdomen concolorous with thorax and with paired spots on terga 3, 4, 5. Femora black, narrowly yellowish at apices, tibiae more or less fuscous, tarsi reddish brown, wings "water" clear, veins dark brown, calypterae whitish, knobs of halteres dull yellow and faintly tinged.

Head with longer arisal hairs slightly shorter than half width of third antennal segment; thorax with lower stigmatal bristle sloping forward and curved downward at apex; abdomen with cerci and processes of sternum 5 similar to those of *L. nearctica* Hockett, cerci flat and elliptical in outline as viewed from above, narrower toward apex, processes shiny black and sharply attenuated distad, appearing curved and hooklike when viewed laterad, fringed with slender setulae, proximal half of process grayish and expanding to unite with an enlarged basal plate.

Fore tibia without mid posterior, mid femur with an extensive series of slender anteroventral setulae and a proximal series of slender posteroventrals, mid tibia with 1 mid posterior, hind femur with 3 widely spaced anteroventrals, of which the prebasal much the shorter, with 1 proximal posteroventral, hind tibia with 1 anteroventral, 2 anterodorsals, 2 short fine posterodorsals and a short apical posteroventral. Tarsi slender.

LENGTH, 4 mm.

HOLOTYPE. ♂, Ruby Lake, Inyo County, California, VIII.13.57 (J. Powell) UCB. PARATYPE. 1♂, same data as holotype (D. D. Linsdale) UCB.

The male of *L. acuticauda* may be separated from that of *L. nearctica* by the blackish third antennal segment and slightly darkened tibiae.

***Lispe approximata* Hockett, new species.**

(Figure 26.)

MALE. Black and with whitish pruinescence, parafrontals and frontal triangle brownish, parafacials silvery, seen from in front with shifting silvery spot opposite base of antennae, cheeks not so silvery, face with dull golden sheen, second antennal segment velvety black, third gray-black, palpi largely purple to blackish, rufous mesad; mesonotum seen from in front sparsely dusted, whitish and without stripes, seen from behind blackish, subshining and with darker presutural stripes on planes of dorsocentral bristles; abdomen whitish, terga 3 and 4 with trace of brownish laterad along caudal margin, and with a faint dorsocentral streak, tergum 5 yellowish brown, caudal border darker and with a pair of shiny dark brown marks, hypopygium deep black, with a median white spot on dorsum. Legs black, tibiae with grayish sheen, tarsi dark brown on dorsum, reddish on venter, pulvilli short, brownish.

Wings clear, hyaline basad, calyptrae whitish, margins brownish, knobs of halteres purple.

Parafrontals setulose, interfrontalia in type at level with anterior ocellus as wide as the distance between the first pair of dorsocentral bristles, caudal pair of ocellar bristles erect, parafacials at middle, viewed from above, scarcely as wide as distance between posterior ocelli inclusive, with a few hairs on ventral half, bare dorsad, vibrissae well developed, longer than parafrontal bristles, palpi broadly and abruptly dilated; mesonotum with acrosticals setulose except caudal pair, with numerous interserial setulae, with 2 pairs of presutural and 3 pairs of postsutural dorsocentrals, scutellum profusely setulose on dorsum and declivities, mesothoracic spiracle nonenlarged, peritreme brownish, hypopleura with a few weak hairs near middle, on upper border, and on ventral angle adjoining hind coxae; abdomen subovate, tergum 5 with a series of discal and marginal bristles, basal sternum setulose, sternum 5 weakly notched at middle of caudal margin, the latter evenly truncate laterad and with several fine bristles (fig. 26).

Fore tibia with an anterodorsal series of 3 or 4 weak bristlelike setulae, apical posteroventral weak, mid femur with proximal anteroventral and posteroventral series of fine short bristles, mid tibia with 1 long anterodorsal and 1 shorter anterodorsal on distal half exclusive of preapical, 1 posterior, ventral surface coarsely setulose on distal half, hind femur with 6 or 7 antero-



ventrals, extending in a series to the basal region and gradually becoming weaker and sparser, with a few fine prebasal posteroventrals, hind tibia with 1 long mid anterodorsal and 3 or 4 weaker bristly setulae on the same plane, with an extensive series of longish posterior setulae. Mid tarsal segments 3 and 4 with fine apical posterior thorns.

LENGTH, 7 mm.

FEMALE. Thorax more densely whitish gray, abdomen with terga 3 and 4 grayish and with a dorsocentral stripe, ovipositor grayish, mid and hind tarsi in allotype reddish tinged; eyes sparsely haired, tibiae with shorter setulae, mid tibia with 1 mid anterodorsal and 1 mid posterior, hind tibia with 1 mid anterodorsal, tarsi normal.

LENGTH, 9 mm.

HOLOTYPE. ♂, Salt Marshes, Palo Alto, Santa Clara County, California, V.23.21 CAS. ALLOTYPE. ♀, Heppner Junction, Oregon, VII.7.29 (H. A. Scullen) CAS.

The species *L. approximata* may be linked with *L. sordida* Aldrich, from which it differs in having only 1 posterior bristle on the mid tibia, and in the male by the longer second mid tarsal segment. From *L. salina* Aldrich the species differs in color of palpi, hairless dorsal half of parafacials, and in the male by the restricted notch of sternum 5.

***Lispe desertorum* Hockett, new species.**

(Figure 25.)

MALE. Slightly teneral; whitish gray, parafacials and cheeks silvery pruinulent, face with dull golden sheen, second antennal segment black, third grayish black, palpi yellow; thorax whitish gray, with a trace of interserial streaks between respective series of acrosticals and dorsocentrals on the pre-sutural region; abdomen concolorous, with 2 small brownish marks on terga 3 and 4 (one of which on tergum 3 is obscured), with median brownish mark on anterior half of tergum 5, hypopygium sooty black and with chalk white marking extended laterad on anterior border, the whole region becoming whitish in shifting lights. Femora grayish black, tibiae brownish and reddish basad, tarsi dark brown, pulvilli small, brownish. Wings clear, calypterae whitish, halteres broken off.

Parafrontals sparsely setulose, parafacials bare on dorsal half and with sparse weak hairs ventrad, third antennal segment fully twice as long as wide, vibrissae well developed, palpi broadly and abruptly dilated; mesonotum sparsely setulose, with 2 pairs of presutural and 3 pairs of postsutural dorsocentrals, hypopleura hairless; abdomen subovate, with 2 discal bristles laterad on terga 4 and 5 respectively, and a more extensive series of bristles along the caudal margin of tergum 5, sternum 5 with a small median process on

caudal margin, the latter truncate laterad and bordered with weak bristles (fig. 25).

Mid and hind femora weakly and sparsely bristled, fore tibia without mid posteroventral, mid femur with few weak posteroventrals, mid tibia with 1 anterodorsal and 1 posterior, hind femur with 3 or 4 short anteroventrals on distal half, the series becoming setulose or absent on the proximal half, 2 fine short posteroventrals, hind tibia with 1 mid anterodorsal.

FEMALE. Slightly darker than male, frons, mesonotum and scutellum of alloppe with yellowish brown infuscation, abdomen whitish gray and unmarked, knobs of halteres purplish; mesonotum with stiff stumpy setulae.

LENGTH, 5 mm.

HOLOTYPE. ♂, Potholes, Imperial County, California, IV.12.23 (E. P. Van Duzee) CAS. ALLOTYPE. ♀, Needles, San Bernardino County, California, II.18.15 (M. C. Van Duzee) CAS.

The male of *L. desertorum* may readily be distinguished by the structure of sternum 5 of abdomen. The female, as in the male, has few short anteroventral and posteroventral bristles on mid and hind femora. The hypopleura lack any trace of hairs.

Limnophora invada Hockett, new species.

MALE. Cinereous gray, head with appendages black, palpi brown, haustellum polished; mesonotum seen from behind with a broad median stripe and sublateral marks on the presutural region, the stripe separated from lateral markings by pale intervening stripes, postsutural region with a broad dark band or collar across the anterior half that extends as markings latero-caudad to the base of the wings and weakly to the supraalar callosities, and as a narrow median vitta to the base of the scutellum, remainder of mesonotum gray, including the scutellum, the latter having a small basal mark on dorsum, metathorax leaden gray; abdomen concolorous, with paired brownish marks on terga 1 + 2, 3 and 4, restricted to dorsum. Femora blackish, tibiae reddish brown, tarsi dark brown, pulvilli tinged. Wings faintly tinged, calyptreae whitish, knobs of halteres yellow.

Narrower part of frons as wide as distance between posterior ocelli inclusive, interfrontalia uninterrupted caudad, parafrontals with 4 or 5 pairs of diverse bristles, extending caudad in series to middle of frons, anterior pair well developed, remainder becoming successively weaker and shorter caudad, with a pair of fine setulae opposite apex of ocellar callosity, parafacials and cheeks narrow, epistoma extended cephalad to beneath apex of antennae, the latter separated basad by a roundish facial bulge, arista pubescent, longer hairs longer than half width of third antennal segment, acrosticals short, in paired series and lacking interserial setulae, with 3 pairs of postsutural dorsocentrals,

anterior intraalar bristle present, weak; abdomen with subtriangular marks and profusely bristled on venter.

Fore tibia without posterior, mid femur with proximal series of slender anteroventral setulae, 4 posteroventrals, mid tibia with 1 posterior, hind femur with 5 anteroventrals on distal half and 5 posteroventrals on proximal region, the longer posteroventral fully as long as maximum height of femur, hind tibia with 1 anteroventral and 1 anterodorsal, tarsi slender, pulvilli long.

Wings with vein M_{1+2} curved forward on approaching wing margin, *m-cu* cross vein suberect.

FEMALE. Markings chestnut or reddish brown, mesonotum with 3 broad well etched stripes, median continued to base of scutellum, laterals slightly constricted at transverse suture and forked caudad, the upper or discal branch ending before reaching supraalar callosity; abdomen with paired marks on terga 1 + 2, 3 and 4, those on the latter two terga broadly arcuate and mainly restricted to posterior region, tergum 5 with a median vitta and with or without paired spots; anterior intraalar bristle short, mid femur with 3 or 4 weak posteroventrals, mid tibia with 1 posterior, hind femur with 2 or 3 anteroventrals distad, 3 or 4 fine posteroventrals, hind tibia with 1 anteroventral, 1 anterodorsal, pulvilli small.

LENGTH, 6 to 6.5 mm.

HOLOTYPE and ALLOTYPE. ♂, ♀, Palm Springs, Riverside County, California, I.12.53 (P. H. Arnaud) PHA. PARATYPES. CALIFORNIA: 1 ♀, same data as holotype, 2 ♀ ♀, same locality as holotype, XII.25.52 (P. H. Arnaud) PHA; 1 ♂, 4 ♀ ♀, Thousand Palms, Riverside County, III.18.55 (D. F. Hardwick), 1 ♂, same locality, IV.25.55 (W. R. M. Mason), 4 ♀ ♀, 1000 Palms Oasis, Thousand Palms, Riverside County, III.10.55, 1 ♂, same locality, III.18.55 (W. R. M. Mason), 1 ♂, 1 ♀, Willis Palms Oasis, Thousand Palms, Riverside County, III.8.55 (W. R. Richards) CNC; 1 ♂, Morongo, San Bernardino County, IX.26.44 (A. L. Melander) USNM.

The species *L. invada* has the habitus of *L. corvina* (Giglio-Tos), from which it differs in having 3 pairs of postsutural dorsocentral bristles, and wider frons in male; from *L. garrula* (Giglio-Tos) by its smaller size, and in having posteroventral bristles on hind femur.

***Helina platykarenos* Hockett, new species.**

MALE. Brownish gray, pleura gray, parafacials with brownish velvety pruinescence, parafrontals and cheeks duller, interfrontalia black from above, with brown sheen, when seen from in front, second antennal segment fuscous, reddish on anterior border, third segment black, palpi brown, paler proximad; mesonotum with 2 submedian brown stripes that terminate caudad at a level near middle of postsutural region, outer pair of stripes as seen from behind weak, incomplete in holotype, scutellum reddish yellow on apical region;

abdomen brownish gray, with pair of brown marks on terga 3 and 4. Legs fulvous, fore femora infuscated on posterior surface except at apex, tarsi brown. Wings grayish tinged, cross veins clouded, calyptrae brownish tinged, knobs or halteres yellow.

Eyes bare, frons and interfrontalia broad caudad, the former wider at middle than distance between first pair of dorsocentral bristles, the latter as wide thereat as length of third antennal segment, cruciate bristles absent, verticals and anterior pair of ocellar bristles strong, parafrontals narrow and bristled as in female, profrons and cheeks slightly longer and higher respectively than width of third antennal segment, the latter about 2.5 times as long as wide, longer arisal hairs slightly longer than half width of third antennal segment; mesonotum with presutural acrosticals setulose and with numerous interserial setulae, 3 pairs of postsutural dorsocentrals, prealars short, sternopleurals 2 : 2; abdomen conical, tergum 5 with numerous discal bristles, hypopygium and processes of sternum 5 in holotype obscured.

Fore tibia without mid posterior, mid femur with 3 or 4 posteroventrals, and slender posteroventral setulae on distal half, with preapical anterodorsal, mid tibia with 2 posteriors, hind femur with 7 or 8 anteroventrals on distal half and much shorter setulose anteroventrals on proximal, with series of weak posteroventrals on proximal three-fourths of femur, hind tibia with series of 8 or 9 anteroventrals on distal two-thirds, bristles gradually becoming shorter distad, those nearer proximal region over twice as long as tibial diameter thereat, those apical shorter than diameter of tibia, posteroventral surface with denser series of diverse more slender bristles on distal three-fourths of tibia, the bristles becoming gradually shorter distad, with 1 mid anterodorsal, proximad and distad of which is a series of slightly longer stronger anterodorsal setulae.

Wings with costal setulae coarsened, costal thorn as long as humeral cross vein, *m-cu* cross vein suberect, bowed inward at middle, veins R_{4+5} and M_{1+2} gradually divergent toward wing margin.

FEMALE. Presutural acrosticals fine and slender, bristly, fore tibia with mid posterior, mid tibia with 3 posteriors, hind femur with 7 irregularly spaced anteroventrals, becoming weak on proximal fourth, 2 or 3 weak short proximal posteroventrals, hind tibia with 4 anteroventrals, the preapical minute, 2 anterodorsals.

LENGTH, 7 to 7.5 mm.

HOLOTYPE and ALLOTYPE. ♂, ♀, Leavitt Meadow, 7,200 feet. Mono County, California, VIII.13.63, at flight trap (H. B. Leech) CAS.

The male of *H. platykarenos* has the wide frons and interfrontalia of *H. spinosa* (Walker) from which it may be separated by the bristling of hind tibiae. The female has many of the characters pertaining to *H. humilis* (Stein),

differing mainly in its duller color, denser clouding of cross veins, and in having 2 anterior sternopleural bristles.

Helina polychaeta Hockett, new species.

MALE. Gray-black, parafrontals, parafacials, and cheeks silvery pruinescient and with dark reflections, first and second antennal segments yellowish brown, third segment gray-black, palpi light brown and infuscated at apex; mesonotum seen from in front with 3 grayish black stripes, from behind with 4 incomplete interserial brown stripes, inner pair terminating caudad at level across middle of postsutural region; scutellum gray and partly brownish on dorsum; abdomen concolorous with thorax, brownish caudad, with a pair of ill-formed brown marks on terga 3 and 4. Legs fulvous, fore femora darkened dorsad, anterior surface of coxae partly grayish, tarsi dark brown, pulvilli whitish. Wings clear, veins dark brown, paler basad, *r-m* cross veins densely infuscated, *m-cu* cross vein evenly clouded, calyptreae whitish, knobs of halteres yellow.

Eyes bare, postocular setulae short, frons at middle slightly wider than breadth of third antennal segment, interfrontalia thereat linear and separating parafrontals, anterior pair of ocellar bristles weak, 4 pairs of parafrontal bristles, profrons and parafacials in profile narrow, cheek as high as width of third antennal segment, marginal bristles weak, vibrissae robust, longer arisal hairs slightly longer than half width of third antennal segment, palpi slender; mesonotum with weak regularly paired acrosticals and interserial setulae, prealars weak, 3 pairs of postsutural dorsocentrals in holotype, sternopleurals 1 : 2; abdomen conical, basal sternum bare, sternum 5 weakly bristled.

Fore tibia with 1 weak mid anterodorsal and 1 mid posterior, mid femur with 2 or 3 posteroventrals and anterior preapical, mid tibia with 2 or 4 posteriors, all short, hind femur with a series of 2 or 3 stronger and 2 or 3 weaker anteroventrals on distal half, with no posteroventrals except a weak apical, hind tibiae respectively with 5 and 9 anteroventral slender bristles on distal two-thirds, a few of which are slightly longer than diameter of tibia where situated, with an opposite series of 10 to 12 longer posteroventrals, most of which are nearly twice as long as diameter of tibia where situated, also with 3 anterodorsals. Wings with costal setulae weak, costal thorn as long as humeral cross vein, *m-cu* cross vein erect, veins R_{4+5} and M_{1+2} divergent toward wing margin.

LENGTH, 5 mm.

HOLOTYPE. ♂, Leavitt Meadow, 7,200 feet, Mono County, California, VIII.12.63, at flight trap (H. B. Leech) CAS.

The male of *H. polychaeta* closely resembles that of *H. obscurimcrvis* (Stein), from which it may be separated by the longer series of longer bristles on posteroventral surface of hind tibia.

Mydaea pilifera Hockett, new species.

MALE. Black, shining, parafrontals, parafacials and cheeks black, or brown when teneral, the two former with silvery pruinescence, second antennal segment fuscous or brown, third segment grayish black and faintly reddish at base, palpi blackish, proboscis dull; mesonotum and scutellum viewed from in front black, glossy, with darker stripes obscured, apical region of scutellum gray and dull, viewed from behind densely grayish pruinulent, with faint darker inner lines adjacent respective series of dorsocentral bristles, with broader stripes between respective series of dorsocentral and intraalar bristles, scutellum blackish and shiny along declivities and apicad; abdomen black, densely yellowish or whitish pruinulent, with a linear dorsocentral vitta, becoming broader on terga 1 + 2. Fore and mid coxae blackish on anterior surface, hind coxae brownish, fore femora more or less infuscated or browned, fulvous on distal third, mid and hind femora and all tibiae fulvous, tarsi blackish or dark brown, pulvilli tinged. Wings smoky, veins dark brown, paler proximad, calyptrae yellowish, knobs of halteres yellow.

Eyes large, bare, closely and extensively approximate across frons, separated at narrower part of frons by a distance equal to diameter of anterior ocellus, parafrontals with 6 pairs of bristles on cephalic half, profrons and cheeks in profile about as wide and high respectively as half width of third antennal segment, parafacials linear, third antennal segment lengthy, apex nearly reaching oral margin, longer arisal hairs fully equal in length to width of third antennal segment; mesonotum with wide series of piliform hairs clothing broad median vitta, 4 pairs of postsutural dorsocentrals, prealars longer than posterior notopleurals, sternopleurals 1 : 2, hypopleura with 1 or 2 weak hairs immediately dorsad of hind coxae; abdomen with sternum 5 broadly and deeply notched, processes with a few slender bristles, bare and shiny on apical region.

Femora with fine bristles, fore tibia without posterior, mid femur with a proximal series of longer posteroventrals and shorter anteroventrals, with 2 preapical anteriors, mid tibia with 3 posteriors, hind femur with a full series of anteroventrals, those on proximal half finer and shorter, about as long as height of femur where situated, with extensive series of fine posteroventrals, hind tibia with 2 anteroventrals, 2 anterodorsals, and a median series of semi-erect posterior setulae.

Wings with costal setulae and thorns weak, minute, *m-cu* crossvein sub-erect, vein R_{4+5} divergent at wing margin.

FEMALE. Abdominal stripe linear or more diffuse, fore femora partly infuscated or entirely fulvous, wings clearer; frons at vertex as wide as distance between first pair of dorsocentral bristles, mid femur with fewer and weaker anteroventrals and posteroventrals, restricted to proximal third, mid tibia with 3 posteriors, hind femur with anteroventral series continued on proximal two-thirds as very short fine bristles, with 1 or 2 fine weak posteroventrals

on proximal third, hind tibia with 1 or 2 anteroventrals, 2 or 3 anterodorsals.
LENGTH, 5 to 6 mm.

HOLOTYPE. ♂, Saddleback Mountain, Lincoln County, Oregon, VII.28.61 (J. C. Dirks-Edmunds) CAS. ALLOTYPE. ♀, same locality as holotype, VII.8.61 (J. C. Dirks-Edmunds) CAS. PARATYPES. ALBERTA: 1 ♀, Edmonton, VI.22.36, 1 ♀, same locality, VI.10.37, 1 ♀, Wabamun, VIII.2.38 (E. H. Strickland) CNC. WASHINGTON: 1 ♀, Preston, V.22.32 (C. H. Martin) HCH. OREGON: 1 ♂, Alsea Mount, 1,000 feet, VI.2.29 (H. A. Scullen) CAS. CALIFORNIA: 1 ♂, Rowdy Creek, Smith River, Del Norte County, VII.11.30 (J. M. Aldrich) USNM; 1 ♀, Fort Seward, Humboldt County, V.25.35 (E. O. Essig) CAS; 1 ♀, Mill Valley, Marin County, IX.11.45 (E. L. Kessel) CAS; 1 ♀, same locality, X.8.54, 1 ♂, Ross, Marin County, V.25.55 (H. L. Mathis) UCD.

The species *M. pilifera* possesses the habitus of *M. narona* Snyder, from which it may be separated by the longer prealar bristle, finer nature of bristles on femora, and by the darker wings in the male.

Xenomysdaea armatipes fuscipes Hockett, new subspecies.

MALE and FEMALE. Agreeing in structure and bristling with that of *X. armatipes* (Malloch), but differing in the more extended darkening of femora and tibiae. The femora in *X. fuscipes* are all blackish except a limited area ventrad on distal third that is reddish, and which in the female is extended to include the apical region. The tibiae are successively darker from hind to fore legs, hind pair being rufous or reddish, or yellowish brown in female, and fore pair largely fuscous or blackish. In addition the calyptrae in both sexes are a darker shade than in *X. armatipes*, being yellowish brown to pale brown.

LENGTH, 8 to 9 mm.

HOLOTYPE. ♂, Mill Valley, Marin County, California, III.16.19 (E. P. Van Duzee) CAS. ALLOTYPE. ♀, Berkeley, Alameda County, California, IV.23.35 (G. E. and R. M. Bohart) CAS. PARATYPE. 1 ♀, Copper Mine Gulch, Marin County, California, III.4.61 (R. Brown) CAS.

Xenomysdaea maculipennis Hockett, new species.

MALE. Black and with whitish pruinescence, parafacials silvery, cheeks blackish and lightly dusted, interfrontalia uniformly broad and black, ocellar triangle shiny, antennae and palpi black, proboscis dull; mesonotum viewed from in front with two broad blackish interserial vittae between the respective series of acrostical and dorsocentral bristles, terminating cephalad on posterior border of presutural region, upper border of lateral declivities broadly blackish, scutellum blackish on basal angles; abdomen with blackish shifting reflections, nonstriped. Legs black, pulvilli whitish. Wings brownish tinged, denser basad, veins brown, *r-m* and *m-cu* cross veins clouded; calyptrae white, margins pale yellow, knobs of halteres dark purple.

Eyes bare, narrower part of frons as wide as length of third antennal segment, the latter slightly shorter than twice length of second segment, parafrontals with 6 pairs of bristles, those caudad weaker and extending in series to a level with apex of ocellar triangle, profrons much longer than width of third antennal segment, cheek about as high as length of the latter, vibrissal region with short coarsened setulae, arista subnude; mesonotum with acrosticals fine and slender, with numerous interserial setulae, 3 pairs of postsutural dorso-centrals, prealars weak, short, sternopleurals 2 : 2, hypopleura bare; abdomen with sternum 1 hairless, sternum 5 deeply notched, and with a few lengthy slender bristles on processes.

Fore tibia without mid bristles, mid femur with a proximal series of longish posteroventrals and shorter finer anteroventrals, with a preapical anterior, mid tibia with 2 posteriors, hind femur with a full series of anteroventrals, and an extensive series of finer shorter posteroventrals, the longer posteroventrals on the middle third of femur and are as long as maximum height of femur, hind tibia with 2 anteroventrals, 2 anterodorsals.

Wings with costal setulae minute, costal thorn slightly longer than diameter of costa thereat, veins R_{4+5} and M_{1+2} divergent near wing margin, $m-cu$ cross veins slightly oblique and deeply bowed inward at middle.

LENGTH, 6.5 mm.

HOLOTYPE. ♂, Beverly Glen, Los Angeles County, California, II.22.52 CAS.

The male of *X. maculipennis* as represented by the holotype may be recognized readily by the clouded cross veins, and by the following combination of characters: black legs, white calyptrae, purple knobs of halteres, two anterior sternopleural bristles, smaller, less robust size.

Pogonomyia amnicola Hockett, new species.

(Figures 8, 16, and 29.)

MALE. Black, mesonotum and scutellum sparsely dusted, abdomen uniformly black and highly shining throughout, without indications of marking, in certain lights exhibiting a slight nap. Wings blackish basad and extensively infuscated distad, calyptrae yellowish, knobs of halteres dark purple.

Narrower part of frons about equal to distance between posterior ocelli, parafrontals contiguous or almost so, parafrontal bristles continued in series caudad to a level with apex of ocellar triangle, arista distinctly pubescent under higher powers, longer hairs slightly longer than basal diameter of arista; acrosticals weak, irregularly paired, notopleural depression with hairs, prealars long, 3 pairs of postsutural dorso-centrals; copulatory appendages and genitalia as in figures 8, 16, 29.

Fore tibia with 1 to 3 subventral bristles, mid femur with weak slender anteroventrals on distal half, the longer shorter than length of arista, with fine longish posteroventrals that become shorter on distal third and at base of

femur, mid tibia with or without anterodorsal, hind femur with a full series of anteroventrals and with or without slender posteroventrals, hind tibia with 4 to 6 anteroventrals, 6 or 7 anterodorsals, 6 posterodorsals, apical posteroventral callus or spur weak, rudimentary, posteroventral series of setulae present or absent, mid and hind tarsi slender.

FEMALE. Profrons usually partly shiny or bare, pruinescence continuous along margin of eye, abdomen black and glossy, wing veins reddish brown basad and membrane fuscous. Mid femur with bristling variable on distal half of anteroventral surface, usually with slender or weak bristles, mid tibia usually without anteroventrals, with 3 or 2 anterodorsals, hind tibia with 3 or 4 anteroventrals, and usually 4 anterodorsals, 4 posterodorsals. Costal setulae coarse.

LENGTH, 4.5 to 6 mm.

HOLOTYPE and ALLOTYPE. ♂, ♀, Sardine Creek, 8,500 feet, Mono County, California, VI.28.51 (J. W. MacSwain) UCB. PARATYPES. CALIFORNIA: 43 ♂♂, 16 ♀♀, same locality and date as holotype (S. M. Kappos, D. P. Lawfer, A. T. McClay, R. W. Morgan USD, C. A. Downing, J. W. MacSwain UCB); 1 ♂, 3 ♀♀, same locality as holotype, VII.6.51, 1 ♂, 5 ♀♀, VII.11-12.51 (A. T. McClay) 1 ♂, 1 ♀, 1 mile S. of Saddlebag Lake, Mono County, VII.15.61 (D. R. Miller) UCD; ♂, Mammoth Lake, Mono County, VII.12.33 CAS; 2 ♀♀, 5 miles E. of Webber Lake, Sierra County, VII.29-30.55 (R. W. Bushing, E. A. Kurtz) UCD; 2 ♂♂, Echo Lake, El Dorado County, VII.23.55 (E. I. Schlinger) 1 ♀, Luther Pass, Grass Lake, El Dorado County, VII.24.55 (J. C. Downey) UCD; 1 ♂, Angora Peak, Tahoe, El Dorado County, VII.26.15 (E. P. Van Duzee) CAS; 1 ♀, Woods Lake, Alpine County, VII.16.60 (C. G. Moore) 1 ♀, Winnemucca Lake, Alpine County, VI.30.59, 1 ♂, same locality, VII.30.59 (R. M. Bohart) UCD; 2 ♀♀, Hope Valley, Alpine County, VII.9.48 (D. Carter, S. A. Sher) UCB, 1 ♂, 1 ♀, same locality, VIII.1.35 (H. H. Keifer) CDA; 1 ♂, 6 ♀♀, 4 miles N. of Silver Lake, Amador County, VII.25.55 (J. C. Downey) UCD; 1 ♂, Strawberry, Tuolumne County, VII.15.51 (A. T. McClay) 1 ♂, Sonora Pass, 9,624 feet, Tuolumne County, VII.17.53 (R. M. Bohart) UCD; 1 ♀, Conness Glacier, Tuolumne County, VII.30.36, 1 ♀, Tuolumne Meadow, Tuolumne County, VII.22.36 (E. C. Hendie) UCB; 1 ♂, in vicinity of Sonora Peak, Tuolumne County, VI.23.60 (D. C. Rentz) CAS; 2 ♂♂, Porcupine Flat, Tuolumne County, VIII.2.62 (R. and K. Dietrich) HCH; 7 ♂♂, 1 ♀, Glacier Point Road, Mariposa-Tuolumne Counties, VII.1.47 (A. L. Melander) USNM.

I have failed to discover that any of the four species of *Pogonomyia* herewith described from California may be regarded as identical with the known forms in the genus. The species *P. amnicola* closely resembles *P. rivalis* (p. 293), a form that I have considered as distinct from *P. amnicola* on account of its paler wings in male and dull profrons in female.

***Pogonomyia profrontalis* Hockett, new species.**

(Figures 27 and 36.)

MALE. Similar to *P. amnicola* in coloration, conformation and bristling. Arisital hairs are shorter, not exceeding in length basal diameter of arista, mid femur with an extensive series of long slender anteroventrals on middle half of femur, the bristles becoming stronger distad, hind femur with a few fine short posteroventrals on proximal half.

FEMALE. Profrons bare and glossy, thus extending narrowly to eye margin, parafrontals highly shining on caudal half, mesonotum viewed from in front jet black, shining and without marking, abdominal tergum 5 black and glossy, without the slight nap or faint dullness on remaining terga when viewed from behind; wings fuscous basad, veins dark brown. Mid femur with strong anteroventrals on distal half, hind femur without posteroventral bristles.

LENGTH, 3.5 to 4.5 mm.

HOLOTYPE and ALLOTYPE. ♂, ♀, Big Spring, Shasta County, California, V.23.41 (E. G. Linsley) UCB. PARATYPES. CALIFORNIA: 1 ♂, Buck's Lake, Plumas County, VI.23.49 (J. W. MacSwain) UCB; 2 ♂♂, 1 ♀, 10 miles S. of Johnsville, Plumas County, VI.12.61 (J. S. Buckett) UCD, 1 ♂, Truckee, Nevada County, VI.10.53 (A. D. Telford), 5 ♂♂, 6 ♀♀, Baxters, Placer County, V.20.52 (A. T. McClay) 1 ♀, Dutch Flat, Placer County, V.13.56 (H. R. Moffitt) UCD; 4 ♂♂, 6 ♀♀, Wright's Lake, El Dorado County, VII.2.48 (R. C. Bynum, J. W. MacSwain, K. W. Tucker UCB, D. Carter UCD); 5 ♀♀, Hope Valley, Alpine County, VI.7.52, 1 ♂, Winnemucca Lake, Alpine County, VI.25.50, 1 ♀, same locality, VII.30.59 (R. M. Bohart) UCD; ♀, Glacier Point Road, Mariposa-Tuolumne Counties, VII.6.47 (A. L. Melander) USNM.

The male of *P. profrontalis* is notable for the extensive series of long anteroventral and posteroventral bristles on mid femur, the posteroventral series commencing near base of femur. The female has profrons conspicuously bare and glossy and mesonotum black and shiny, arista minutely haired, mid femur with 1 or 2 strong anteroventrals on distal half. The female of *P. santamonicae* (p. 294) possesses many of the distinguishing characters of *P. profrontalis*, differing mainly in the dulled nature of the mesonotum.

***Pogonomyia rivalis* Hockett, new species.**

MALE. Similar in habitus to *amnicola* (p. 291). The wings are decidedly paler than in that species, being grayish except on basal region, anal lobe of wing membrane clear. Arisital hairs slightly longer than basal diameter of arista, mid femur with a slightly stronger anteroventral on distal half than that of *P. amnicola*.

FEMALE. Differing from *P. amnicola* in having profrons entirely dull or pruinose, mid femur with a strong anteroventral on distal half, abdomen shiny and glossy. Wings as in male, veins dark brown basad.

HOLOTYPE and ALLOTYPE. ♂, ♀, Sardine Creek, 8,500 feet, Mono County, California, VI.28.51 (S. M. Kappos) UCD. PARATYPES. CALIFORNIA: 6♂♂, 21♀♀, same locality and date as holotype, (D. P. Lawfer, S. M. Kappos, A. T. McClay, R. W. Morgan UCD, C. A. Downing, J. W. MacSwain UCB); 1♀, 1 mile S. of of Saddlebag Lake, Mono County, VII.15.61 (D. R. Miller) UCD; 1♂, Angora Peak, Tahoe, El Dorado County, VII.26.13 (E. P. Van Duzee) CAS.

There are a few female specimens (5) from Sardine Creek taken by A. T. McClay at the same time as those of *P. rivalis* and *P. annicola* which possess a completely dull profrons as in *P. rivalis* and weak anteroventral bristling on mid femur as in *P. annicola*, specimens that I consider may represent a hybridization of the two forms.

Pogonomyia santamonicae Hockett, new species.

(Figures 28 and 35.)

MALE. Black, mesonotum and scutellum subshining, with sparse brownish dust, abdomen with more or less distinct brownish pruinescence laterad on terga 3, 4, 5, and dark median marking, becoming successively broader cephalad, terga 1 + 2 entirely blackish.

Narrower part of frons about as wide as twice diameter of anterior ocellus, parafrontal bristles slender, becoming short caudad, series reaching opposite apex of ocellar triangle, arisal hairs not longer than basal diameter of arista; mesonotum, scutellum and abdomen bristled as in *P. annicola*. Copulatory appendages and genitalia as in figures 28, 35. Mid femur slender, with 3 or 4 long anteroventrals on distal half, and 1 or 2 fine short prebasal anteroventrals, with a series of slender longish posteroventral bristles on proximal half to two-thirds, mid tibia with robust anterodorsal, hind femora with long anteroventral and posterior bristles, with a few weak posteroventrals on distal half, apex of hind tibia with weak callus or spur.

FEMALE. Profrons notably bare and polished, extending thus tenuously to eye margin, arista minutely haired, mesonotum with slight brownish pollen and weak darker median stripe as seen from in front, mid femur with a strong anteroventral on distal half.

LENGTH, 4 mm.

HOLOTYPE and ALLOTYPE. ♂, ♀, Santa Monica Mountains, Los Angeles County, VII.3.50 UCB. PARATYPES. CALIFORNIA: 1♂, same data as holotype, UCLA; 1♂, 2♀♀, Claremont, Los Angeles County, no date (Baker), 1♂, mountains near Claremont, Los Angeles County, no date, (Baker) USNM; 4♂♂, 4♀♀, Cuyamaca, San Diego County, V.7.48 (A. L. Melander) USNM; 3♂♂, Cuyamaca Lake, 4,600 feet, San Diego County, IV.21.55 (W. R. M. Mason, W. R. Richards) CNC; 1♂, Pine Valley, San Diego County, IV.24.20 (E. P. Van Duzee) CAS; 1♂, Keen Camp, Riverside County, V.18.51 (E. I. Schlinger) UCB.

The male of *P. santamonicae* may be distinguished from those of *P. amnicola*, *P. profrontalis*, and *P. rivalis* by the brownish pruinescence and median marking on abdomen, and the female likewise by the brownish dust and median striping on mesonotum.

Plexiopsis Hockett, new genus.

Related to *Dendrophaonia* Malloch, from which *Plexiopsis* may be separated by the strong apical posteroventral bristle on hind tibia, absence of stout upturned buccal bristle, and in female without anterior pair of strong proclinate paraorbital bristles. From *Dialyta* Rondani the genus differs in having hairs on eyes and a prealar bristle on mesonotum, and in that the head in profile is not horizontally inclined or flattish on dorsum, with antennae set high in *Dialyta* in relation to its position with the eyes.

GENOTYPE. *Plexiopsis insolens*, new species.

Plexiopsis insolens Hockett, new species.

MALE. Black, shiny, antennae and palpi black, parafacials silvery gray, cheeks dull, reddish tinged; thorax and abdomen with sparse grayish pruinescence, mesonotum seen from behind with 4 stripes, inner pair denser; abdomen with a dorsocentral marking and dark reflections. Femora entirely black, tibiae successively slightly paler from front to hind pairs, the latter brownish, pulvilli whitish. Wings gray, brownish infuscated basad, cross veins unclouded, calyptae yellowish tinged, knobs of halteres purple.

Frons broadened and bristled as in female, paraorbitals present and verticals long, interfrontalia broad, nearly as wide as length of third antennal segment, cruciate bristles absent, profrons and cheeks slightly longer and higher respectively than width of third antennal segment, parafacials slightly concave or dished in profile, narrower at middle, third antennal segment about 1.5 times as long as wide, arisal hairs about twice as long as basal diameter of arista. Eyes with short hairs. Mesonotum with 2 pairs of irregularly and closely paired presutural acrosticals, with 3 pairs of postsutural dorsocentrals, prealars of holotype slightly shorter than length of anterior notopleurals, sternopleurals 1 : 2, prosternum, pteropleura and hypopleura bare; abdomen conical, slender, with strong tergal bristles.

Fore tibia with or without fine posterior, and with fine dense ventral setulae on distal two-thirds, mid femur with an extensive series of fine slender anteroventrals and posteroventrals, with an anterior preapical, mid tibia with 1 anterodorsal, 2 posteriors, hind femur with a full anteroventral series and finer posteroventrals, the latter becoming short toward basal and apical regions of femur, hind tibia with 1 or 2 anteroventrals, an anterior series of coarse setulae, 2 anterodorsals, 1 long posterodorsal (calcar), and 1 or 2 firmer posterodorsal setulae proximad, with a series of fine suberect posterior setulae

on middle half of tibia, preapical posterodorsal long in type, apical posteroventral robust.

Wings broad and bluntly rounded distad, costal setulae coarse, costal thorn long, *m-cu* cross vein erect.

FEMALE. Parafrontals and mesonotum with brownish pruinescence, abdomen entirely black and glossy, markless; frons across middle fully one-third maximum width of head as seen from above, interfrontalia thereat wider than length of antenna, cruciate bristles absent; mesonotum with prealars in allotype about half length of anterior notopleurals; mid femur with an extensive series of slender anteroventral setulae, and a proximal series of fine posteroventrals, mid tibia with 2 anterodorsals, hind femur with anteroventrals weak and shorter on proximal half, posteroventrals fine, short and sparse, hind tibia with preapical posterodorsal short in allotype, apical posteroventral robust.

LENGTH, 6 mm.

HOLOTYPE and ALLOTYPE. ♂, ♀, Elkhorn Ferry, Yolo County, California, IV.16.52 (E. I. Schlinger) UCD. PARATYPES. CALIFORNIA: 1♂, same data as holotype, 1♂, Davis, Yolo County, V.5.53, 1♀, Elk Grove, Sacramento County, IV.18.52 (E. C. Carlson) UCD; 1♀, Lagunitas, Marin County, IV.26.24 (E. P. Van Duzee) CAS; 1♂, Cedar Pass, Modoc County, VI.29.55 (J. W. MacSwain), 1♂, same locality, VII.8.46 (P. D. Hurd, R. F. Smith) UCB. OREGON: 1♀, 12 miles SW. of Silver Lake, Lake County, VII.15.62 (R. W. Matthews) HCH.

The female of *P. insolens* is notable for its glossy unmarked black abdomen. Both sexes have broad bluntly rounded rather short wings, with costal setulae coarse and costal thorn extra long.

Phaonia antennalis Hockett, new species.

MALE. Gray, interfrontalia broad and with whitish dust, parafacials silvery, cheeks dark and lightly powdered, second antennal segment brownish, third entirely grayish black, palpi dark brown or fuscous, proboscis dull; mesonotum seen from in front pale gray, with 4 strong interserial brown stripes, scutellum gray on dorsum, blackish on venter and basal half of declivities as seen from behind; abdomen gray, with a blackish dorsocentral stripe, terga 3, 4, 5, each with dark shiny reflections on posterior half, that become successively more extensive cephalad with each segment. Femora blackish, knees and tibiae reddish brown, tarsi dark brown. Wings hyaline, vitreous, cross veins with blotchy clouding that on *m-cu* cross vein tends to become denser at extremities of vein; calyptrae white, knobs of halteres brown and purplish tinged.

Eyes bare, postocular setulae short, frons at narrower part fully one and a half times as wide as breadth of third antennal segment, interfrontalia broad, wider than antenna and without cruciate setulae, parafrontal bristles

slender, becoming weak caudad and continued in series to a point opposite anterior ocellus, profrons slightly shorter than width of third antennal segment, parafacials much narrowed ventrad, cheeks rapidly tapering caudad below eye, with several marginal setulae along ventral border, third antennal segment nearly 3 times as long as wide, its apex nearly reaching to a level with oral margin, arista minutely haired, mesonotum with 2 or 3 pairs of presutural acrosticals, prealars as long as posterior notopleurals, the latter with 1 or 2 minute hairs at base, with 4 pairs of postsutural dorsocentrals, hypopleura with few minute hairs below spiracle; abdomen subovate. Fore tibia without mid posterior, mid femur with a proximal series of fine short posteroventrals, preapical anterior absent, mid tibia with 3 short posteriors, hind femur with 2 or 3 stronger anteroventrals on distal half, remaining bristles of anteroventral series continued to base and are much shorter, posteroventrals fine and hair-like, restricted to proximal half, hind tibia with 1 or 2 anteroventrals, 2 anterodorsals, all short, 1 posterodorsal (calcar), which is shorter than width of tibia where situated.

Wings with costal setulae and thorns minute, *m-cu* cross vein suberect and sinuate, veins R_{4+5} and M_{1+2} slightly divergent toward wing margin.

FEMALE. Marked as in male, frons at vertex as wide as distance between first pair of dorsocentrals, with a weak pair of cruciate bristles, profrons wider than breadth of third antennal segment, hairs not evident at base of posterior notopleurals, nor on hypopleura, prealars slightly shorter to slightly longer than posterior notopleurals.

LENGTH, 5 mm.

HOLOTYPE. ♂, Bryson, Monterey County, California, V.17.20 (E. P. Van Duzee) CAS. ALLOTYPE. ♀, Bradley, Monterey County, California, V.17.20 (E. P. Van Duzee) CAS. PARATYPES. 2 ♀♀, same data as allotype, 1 ♂, Redlands, San Bernardino County, California, XII.14.—CAS.

The species *P. antennalis* belongs to the *harti*-group within the genus *Phaonia*. It may be distinguished from allied forms by the long antennae and minutely haired arista, by the weak short posterodorsal on the hind tibia, and further by the broad interfrontalia in male. The above male specimens are not in good condition owing to breakage, but what is lacking in one is present in the other.

***Phaonia coriatlanis* Hockett, new species.**

MALE. Brownish gray, head with interfrontalia black, viewed from in front with whitish dust, parafrontals and cheeks silvery pruinose, cheeks whitish and with dull reddish reflection when viewed laterad, second antennal segment fulvous, third black, palpi dark brown; mesonotum seen from behind with 4 dark stripes, inner pair terminating caudad at a level near middle of postsutural region, outer pair to near caudal pair of dorsocentral bristles,

scutellum brownish, pleura gray; abdomen paler, with ill-formed dark brown dorsocentral stripe, becoming wider cephalad. Fore femora blackish, yellowish at apex, mid femora mainly fulvous, being slightly darkened along ventral half of posterior surface, hind femora and all tibiae fulvous, tarsi dark brown. Wings grayish, veins unevenly browned, *r-m* and *m-cu* cross veins broadly infuscated, calyptrae brownish tinged, knobs of halteres yellow.

Head with eyes bare, narrower part of frons nearly as wide as and cheeks nearly as high as length of third antennal segment, interfrontalia thereat wider than breadth of the latter, parafrontals linear on caudal half and with few sparse hairs, 4 pairs of bristles on cephalic half, postocular setulae and verticals short, cruciate bristles absent, profrons fully as wide as and arisal hairs nearly as long as width of third antennal segment; mesonotum with presutural acrosticals unevenly setulose, 2 pairs in type being more bristly, postsutural acrosticals finely setulose except caudal pair, prealars long, notopleural depression without setulae and posterior bristle short, 3 pairs of postsutural dorsocentrals, hypopleura without hairs on upper border, sternopleurals 1 : 2; abdomen subovate, with full series of marginal bristles on terga, and with discals on terga 4 and 5.

Fore tibia without middle posterior, mid femur with a proximal series of posteroventrals, with preapical anterior and anterodorsal, mid tibia with 2 or 3 posteriors, hind femur with 5 anteroventrals on distal half, and several short much weaker anteroventrals on proximal half, with 4 slender posteroventrals on proximal third, being as long or longer than height of femur where situated, posteroventral series continued distad as much weaker setulose bristles, hind tibia with 1 or 2 anteroventrals, 2 anterodorsals, a long posterodorsal (calcar), preapical posterodorsal as long as preapical anterodorsal, fore metatarsus without longish sensory posteroventral hairs except at base and apex.

Wings with costal setulae weak, costal thorn as long as humeral cross vein, veins R_{4+5} and M_{1+2} slightly divergent toward wing margin, *m-cu* cross vein suboblique and sinuate, knobs of halteres yellow.

FEMALE. Gray, and without brownish tinge, frons at middle wider than distance between first pair of dorsocentral bristles and interfrontalia thereat nearly as wide as that distance, cruciate bristles absent, cheek three-fourths to fully as high as length of third antennal segment, the latter yellowish basad, palpi paler proximad. All femora and tibiae fulvous, fore pairs slightly darkened, hind femur with 6 anteroventrals, unevenly spaced, and anteroventral series extended as weaker bristles on proximal third, with 3 lengthy proximal posteroventrals. Wings with *m-cu* cross vein erect and bowed inward at middle.

LENGTH, 6.5 to 7 mm.

HOLOTYPE. ♂, Cuyamaca Lake, San Diego County, California, IV.21.55 (W. R. M. Mason) CNC. ALLOTYPE. ♀, Alpine Inn, Mt. Lowe, 5,000 feet, Los Angeles County, California, VI.12.—(24) (J. M. Aldrich) USNM. PARA-

TYPES. CALIFORNIA: 1♀, Mt. Home Canyon, San Bernardino Mountains, VI.8.24 (J. M. Aldrich) USNM; 1♀, Leavitt Meadows, 7,200 feet, Mono County, VIII.13.63, variant, at flight trap (H. B. Leech) CAS.

The male of *P. coriatlanis* differs from those of related species in having the eyes more widely separated across frons, and in the bristling of hind femur. In both sexes the presutural acrosticals though short are unevenly developed, some being bristly and some finely setulose. There is also some variation in dimensions of cheeks and parafacials and length of antennae in female specimens.

Phaonia neglecta Hockett, new species.

MALE. Dark gray, parafacials and cheeks silvery pruinulent, the latter with dark reflections, second antennal segment and basal border of third on its inner surface fulvous, remainder of third segment grayish black, palpi yellowish brown or reddish proximad, fuscous distad, proboscis dull; mesonotum bluish gray, viewed from behind with 4 interserial stripes, scutellum largely fulvous, basal half on dorsum grayish pruinulent; abdomen gray with whitish or cinereous pruinescence, with dark dorsocentral vitta and dark reflections. Coxae grayish tinged, fore femora more or less darkened, mid and hind femora and all tibiae fulvous, tarsi dark brown. Wings faintly grayish, both cross veins lightly infuscated, calypterae clear, knobs of halteres yellow or brownish yellow.

Eyes densely haired, closely and extensively approximated across frons, at narrower part separated by a distance equal to that between posterior ocelli, parafrontals with 4 or 5 pairs of bristles cephalad, the series continued caudad as fine hairs, postocular setulae short, parafacials narrow, cheeks broad on buccal region, tapered caudad below eye, third antennal segment fully twice as long as second, longer arisal hairs nearly equal to width of third antennal segment; mesonotum with 2 pairs of presutural acrosticals, bristles of each pair narrowly separated, 3 pairs of postsutural dorsocentrals, prealars extra long, notopleural depression without hairs, hypopleura hairless on upper border cephalad of spiracle, both spiracles large, peritreme of mesothoracic spiracle pale; abdomen subovate, robust, basal sternum with one or more setulae.

Fore tibia without posterior, fore metatarsus with fine short posteroventral sensory hairs exclusive of those at apex and at base, mid femur with clothing of numerous fine slender ventral hairs, and with 5 or 6 short posteroventrals on proximal two-thirds, with preapical anterior, mid tibia with 3 posteriors, hind femur with an extensive series of anteroventrals, those on the proximal half being weaker and shorter, and with proximal series of fine short posteroventrals, hind tibia with 3 anteroventrals, 2 anterodorsals, 1 posterodorsal.

Wings with costal setulae minute and thorns weak, *m-cu* cross vein slightly oblique, sinuate, veins R_{4+5} and M_{1+2} divergent near wing margin.

FEMALE. Eyes sparsely haired, frons at vertex of allotype as wide as one-third maximum diameter of head when viewed from above, interfrontalia broad and with brownish sheen, without cruciate setulae in allotype, parafrontals narrow, profrons as long as width of third antennal segment, second segment brown or blackish, third black, palpi fuscous, paler basad; mesonotum seen from in front with 4 brown interserial stripes confluent with the darker serial, scutellum more or less fulvous, grayish basad, with one strong and one weak pair of presutural acrosticals. Fore femora blackish or largely fulvous, mid femur without the ventral clothing of slender hairs in male, hind femur with proximal anteroventrals and posteroventrals fewer and weaker. Wings with *m-cu* cross vein suberect, sinuate.

LENGTH, 6 to 7.5 mm.

HOLOTYPE. ♂, Giant Forest, Sequoia National Park, Tulare County, California, VII.28.29 (P. W. Oman) HCH. ALLOTYPE. ♀, Echo, El Dorado County, California, VIII.10.40 (L. J. Lipovsky) HCH. PARATYPE. WASHINGTON: 1♂, Mt. Rainier, White River, VII.20.24, 1♀, Mt. Rainier, Yakima Trail, VII.22.24 (A. L. Melander) USNM. OREGON: 1♀, Portland, VII.20.40, *ex* willow, (K. Gray, J. Schuh) HCH. CALIFORNIA: 1♀, Big Pines, Los Angeles County, VI.29.48 (A. L. Melander) USNM. ALBERTA: 1♀, Banff, VII.10.22 (C. B. D. Garrett) CNC. COLORADO: 5♀♀, Boulder Canyon, 7,800 feet, VIII.8.60 (R. and K. Dreisbach) HCH.

The species *P. neglecta* is similar in habitus to *P. striata* Stein, from which it differs in the male by the narrower frons, and in both sexes by absence of hairs at base of posterior notopleural bristle. In the above specimens there are with one exception three pairs of postsutural dorsocentral bristles; all lack the hairs on hypopleura adjacent anteroventral margin of spiracle. Three of the ten females examined have vestiges of cruciate setulae.

***Phaonia reclusa* Hockett, new species.**

MALE. Gray, head with whitish pruinescence, parafacials silvery, occiput gray, second antennal segment rufous, third segment grayish black, palpi brownish; mesonotum with whitish sheen and with 4 dark vittae when seen from behind, inner pair terminating caudad at level with middle of postsutural region, outer pair extending to near caudal pair of dorsocentral bristles, in addition with a short median stripe on caudal half of postsutural region, scutellum with brownish discal marking and is slightly reddish testaceous apicad; abdomen whitish gray, with narrow dorsocentral vitta, becoming linear caudad, and with broad dark reflections, hypopygium reddish brown. Coxae gray, femora brownish black except at knees, tibiae reddish brown, fore pair slightly darker, all with a whitish sheen in certain lights, tarsi dark brown. Wings hyaline, veins brown, cross veins in type faintly infuscated, calyptrae white, halteres purple.

Eyes sparsely haired, narrower part of frons twice as wide as width of third antennal segment, interfrontalia thereat fully as wide as the latter, parafrontal bristles weak, series extended caudad to opposite anterior ocellus and is partly duplicated by a few inner set marginal bristles, verticals weak, profrons longer than width of third antennal segment, cheeks broadly maintained caudad, higher than one-third height of eye, third antennal segment narrow, fully three times as long as wide, longer arisal hairs slightly shorter than width of the latter; mesonotum with 3 pairs of slender weak presutural acrosticals, and with several shorter interserial setulae, 4 pairs of postsutural dorsocentrals, prealars shorter than posterior notopleurals, notopleural depression with or without 1 or 2 minute hairs, sternopleurals 1:2, lower caudal bristle about half length of upper, hypopleura, pteropleura and prosternum hairless; abdomen robust, broadly subovate, sternum 1 bare.

Fore tibia without posterior, fore metatarsus with 1 or 2 lengthy posteroventral hairs exclusive of those at apex and base, mid femur with a dense series of slender anteroventral setulae and series of short posteroventrals on proximal half, mid tibia with 2 short posteriors, hind femur with extensive series of short anteroventrals, which become weaker proximad, with a proximal series of short weak posteroventrals, hind tibia with 3 fine weak anteroventrals, 1 or 2 anterodorsals, 2 short weak posterodorsals including the calcar, both of which are not longer than width of tibia where situated, the proximal bristle being set at middle of posterodorsal surface.

Wings with costal setulae and thorns weak, veins of radius without setulae, R_{4+5} and M_{1+2} divergent toward wing margin, *m-cu* cross vein oblique.

LENGTH, 9 mm.

HOLOTYPE. ♂, Upper Santa Ana River, San Bernardino Mountains, California, V.12.47 (John Sperry) USNM.

The males of *P. reclusa*, *P. antennalis* (p. 296) and *P. sobriana* (p. 304) are notable on account of the much shorter calcar bristle on the hind tibia than is typical of many nearctic species belonging to the genus.

***Phaonia reflecta* Hockett, new species.**

MALE. Brownish gray, parafacials silvery, cheeks with reddish brown reflections, proboscis dull, second antennal segment and basal border on inner surface of third fulvous, remainder of third segment grayish black, palpi pale brown proximad, fuscous on apical region; mesonotum and scutellum with yellowish brown pollen, the former seen from in front with broad median and two sublateral presutural dark stripes, and with four dark postsutural stripes, scutellum concolorous, seen from behind with shiny smooth dark reflections on declivities, as if abraded; abdomen densely yellowish pruinulent and with dark dorsocentral vitta. Fore femora and fore and mid coxae brownish, mid and hind femora and all tibiae fulvous, tarsi dark brown.

Wings clear, cross veins unclouded, calyptrae white, knobs of halteres yellow.

Eyes densely haired, closely and extensively approximated across frons, separated at narrower part by distance equal to that between posterior ocelli exclusive, 4 pairs of parafrontal bristles, parafacials narrow, cheeks slightly wider, with several fine setulae along grayish ventral border of head, third antennal segment slightly longer than twice length of second, longer arisal hairs nearly equal to width of third antennal segment; mesonotum with 2 pairs of fine acrosticals on presutural region, distance between series greater than that separating the respective series of acrosticals and dorsocentrals, 4 pairs of postsutural dorsocentrals in type, prealars slightly shorter than posterior notopleurals, latter with hairs at base, hypopleura without hairs on upper border, spiracles large, peritreme of mesothoracic spiracle pale; abdomen subovate, basal sternum bare.

Legs slender, fore tibia without posterior, fore metatarsus with a few slender posteroventral sensory hairs, mid femur with series of slender anteroventral setulae and short posteroventrals on proximal two-thirds, with 2 preapical anteriors, mid tibia with 2 posteriors, hind femur with a full series of anteroventrals, the bristling becoming shorter and weaker on proximal half, with a proximal series of fine short posteroventrals, hind tibia with 1 anteroventral, 2 anterodorsals, of which the distal bristle is much the weaker and shorter, 1 posterodorsal, tarsi slender.

Wings with costal setulae and thorns minute, vein R_{4+5} divergent at wing margin, vein M_{1+2} in type not divergent at wing margin, *m-cu* cross vein erect.

FEMALE. Frons at vertex slightly wider than one-third maximum diameter of head as viewed from above, interfrontalia with brownish sheen and with cruciate setulae, parafacials and cheeks narrow, third antennal segment entirely grayish black or nearly so, longer arisal hairs as long as width of third antennal segment, palpi slender; mesonotum and scutellum marked as in male, postsutural stripes largely obscured by pruinescence, second pair of postsutural dorsocentrals weak, about equal to presutural acrosticals, thus only 3 strong pairs of postsutural dorsocentrals in allotype and paratype, hypopleura in allotype with 1 hair on upper border cephalad of spiracle; abdomen with a dorsocentral vitta and faint dark brown reflections. Fore femora and fore coxae more or less brownish, mid femur with a few weak proximal posteroventrals, hind femur with anteroventral and posteroventral bristles on proximal half sparse and very weak, hind tibia with 1 or 2 anteroventrals, 2 or 3 anterodorsals. Wings with *m-cu* cross veins lightly infuscated.

LENGTH, 6 to 7 mm.

HOLOTYPE. ♂, Fairfax, Washington, VII.12.30 CAS. ALLOTYPE. ♀, Mount St. Helena, Napa County, California, VII.28.40 (B. Brookman) CAS. PARATYPE. 1 ♀, Lyon's Dam, Tuolumne County, California, VII.8.37 (T. G. H. Aitken) CAS.

The species *P. reflecta* as represented by the specimens before me exhibit some degree of variability as to the presence or absence of hairs at base of posterior notopleural bristle and on hypopleura, presence or absence of clouding on cross veins, and in the number of well developed postsutural dorsocentral bristles.

The species may be delimited by the following characters: mesonotum with broad median vitta on which are two pairs of widely separated presutural acrostical bristles, scutellum with large dark reflective marking on each declivity as viewed from behind, cheeks comparatively narrow, veins R_{4+5} and M_{1+2} dissimilar at apex in their course to wing margin.

Phaonia reversa Hockett, new species.

MALE. Black, subshining, parafrontals and parafacials with dull grayish pruinescence, cheeks brownish so, interfrontalia seen from below with brownish sheen, antennae and palpi blackish, haustellum dull; mesonotum and scutellum seen from behind thinly grayish pruinescent, the former with 4 black stripes; abdomen seen from behind more densely whitish gray and with a linear dorsocentral stripe, hypopygium and sterna blackish and shiny. Legs black, knees narrowly reddish brown and hind tibiae entirely so except for slight infuscation proximad, pulvilli whitish. Wings brownish tinged, more densely basad, *r-m* cross veins faintly clouded, *m-cu* cross veins clear, calyptrae yellowish tinged, knobs of halteres yellow.

Eyes densely short haired, separated at narrower part of frons by a distance about equal to width of third antennal segment, interfrontalia thereat about as wide as distance between posterior ocelli inclusive, series of parafrontal bristles continued caudad to opposite anterior ocellus, bristles becoming weak and much shorter caudad, cruciate setulae absent, longer arisal hairs slightly shorter and profrons slightly narrower than width of third antennal segment, parafacials narrow, cheek narrow and restricted caudad, ventral border of head broad and coarsely setulose; mesonotum with 2 pairs of presutural acrosticals (one pair evidently missing in type as indicated by larger trichopores), 3 pairs of postsutural dorsocentrals, prealars as long and slightly shorter than anterior notopleurals, posterior notopleurals with hairs at base, scutellum setulose on dorsum, hypopleura hairless, sternopleurals 1:2; abdomen subovate, finely bristled, terga 4 and 5 with several discal bristles on dorsum, sternum 1 setulose, sternum 5 weakly bristled and with broad shallow caudal emargination, capped at lateral extremities by small shiny callosity or process.

Fore tibia clothed on ventral surface with coarse setulae, with 1 or 2 fine setulose posteriors that are scarcely as long as apical width of tibia, fore metatarsus with 1 or 2 sensory posteroventral hairs exclusive of those at apex and base, mid femur with a proximal series of short fine anteroventrals and

posteroventrals, preapical anterodorsal absent, mid tibia with 2 posteriors situated on proximal half in the type, hind femur with a full series of short anteroventrals and a proximal series of short posteroventrals, bristles on proximal half fine and scarcely as long as maximum height of femur, hind tibia with 3 or 4 anteroventrals, 2 anterodorsals, 1 posterodorsal, 1 or 2 posterior semierect setulae on middle half of tibia, preapical posterodorsal weak.

Wings with costal setulae and thorns weak, *m-cu* cross veins oblique and sinuate, veins R_{4+5} and M_{1+2} slightly divergent near wing margin.

LENGTH, 6.5 mm.

HOLOTYPE. ♂, Mono Pass, Inyo County, California, VIII.13.57 (D. D. Linsdale) UCB.

The type-specimen of *P. reversa* differs from males of similar habitus in having the hind tibiae reddish brown in contrast to black fore and mid pairs. The interfrontalia in the type is unevenly maintained in width, expanding broadly cephalad and contracting to relatively narrow proportions caudad, and thereat the bordering bristles become much shorter and finer. Sternum 5 of abdomen is not notched caudad to form two lobes or processes.

***Phaonia sobriana* Hockett, new species.**

MALE. Gray, resembling *P. limbinervis* Stein in coloration and thoracic marking, but differing notably in the following respects: Mesonotum with tawny striping on postsutural region, abdomen robust, broadly subovate, without spotlike marks laterad on terga 3 and 4. Also arisal hairs are shorter, being barely longer than half width of third antennal segment, mid femur with series of short coarse anteroventral setulae on proximal and distal thirds, hind tibia with calcar bristle weak, not longer than width of tibia where situated. In the type the hypopleura has 1 or 2 hairs on upper border, and the wings are deeply blotched on *r-m* and at ends of *m-cu* cross veins.

LENGTH, 9 mm.

HOLOTYPE. ♂, Mather, Tuolumne County, California, VIII, 1950, at slime flux (A. Sokoloff) UCB.

I have a female specimen with third antennal segments and fore legs missing that I regard as conspecific with the holotype of *P. sobriana*. The data furnished by the label indicate that the specimen was taken on the same day and at the same locality as the above male, and at banana trap. The specimen is pale or whitish gray, much as the holotype, with similar characteristic features pertaining to markings of mesonotum, abdomen, and wings. Cruciate bristles on interfrontalia are absent, palpi spatulate, scutellum entirely gray and lacking apical reddish tinge present in holotype. The calcar bristle on hind tibia is short and weak.

LENGTH, 6 mm.

Hylemya (Botanophila) emarginalis Hockett, new name.

The name *Hylemyia marginata* Stein (1898) is preoccupied by the prior name *Eriphia marginata* Walker (1849), a name commonly listed as a synonym of *Hylemyia platura* (Meigen). Being thus congeneric and a secondary homonym I propose the new name *emarginalis* for Stein's species. I am indebted to Mr. C. W. Sabrosky for drawing my attention to this detail. The species has been taken in several localities in California.

